3.3.4 Biological Resources

BIOLOGICAL RESOURCES – Would the Project:	**Potentially Significant Impact**	**Less Than Significant with Mitigation**	**Less Than Significant Impact**	**No Impact**
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☒	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☒	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☒	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒	☐	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan?	☐	☐	☐	☒

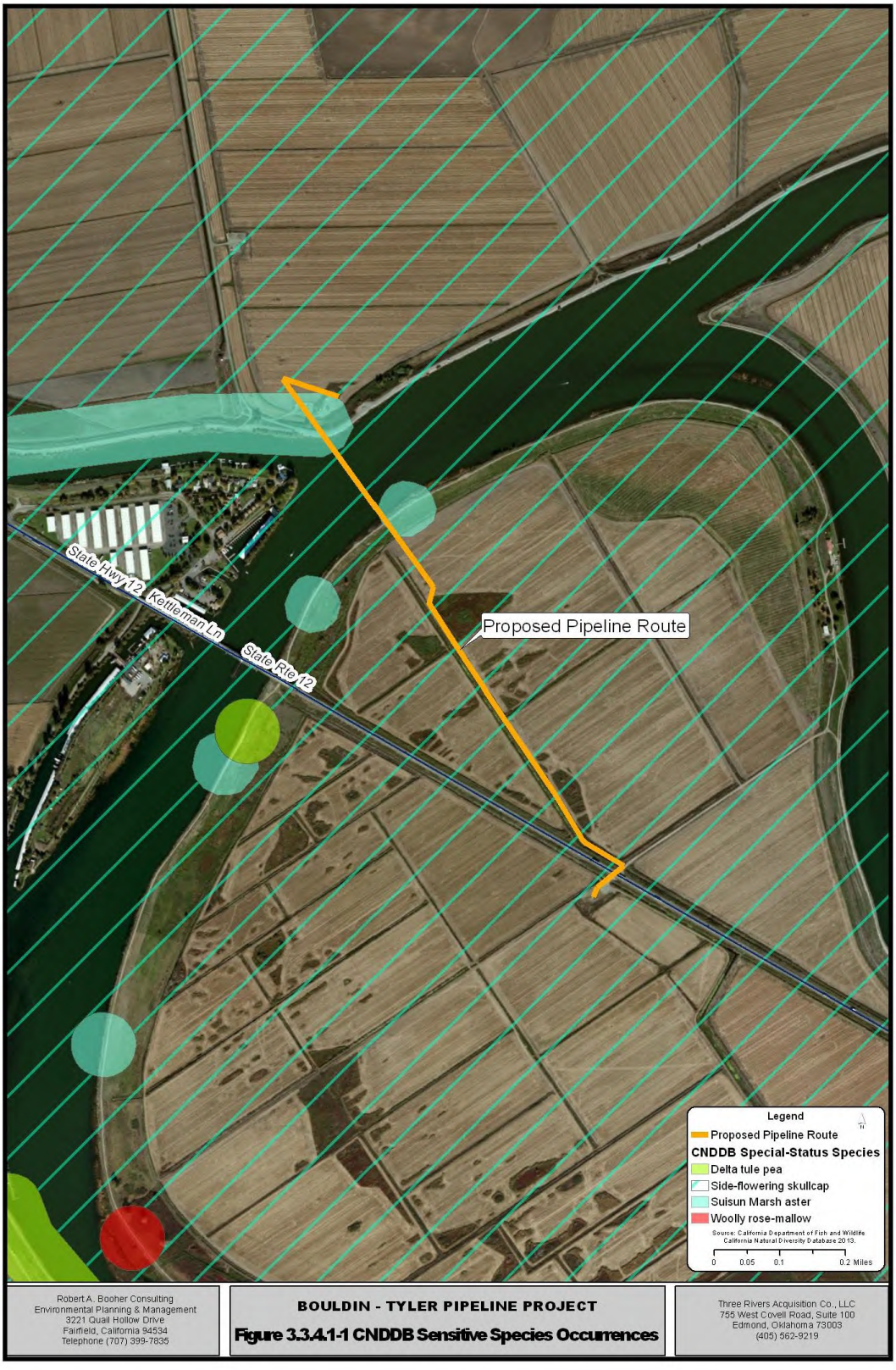
3.3.4.1 Environmental Setting

Robert A. Booher Consulting (RAB Consulting) conducted a literature review and reconnaissance-level field surveys to identify special-status plant and wildlife species, and sensitive habitats that could be present within the proposed pipeline alignment, existing access roads, and areas immediately adjacent to these areas. The following sections describe the survey methods used, and the literature and databases reviewed.

Tables 3.3.4-1 lists plant and wildlife species observed during biological surveys, and Table 3.3.4-2 (at the end of this section) lists special-status wildlife species (see also Figure 3.3.4.1-1). Figure 3.3.4.1-2 shows the location of wetland habitat in the Project area. Appendix D (Biological Assessment Report) provides a detailed discussion of the biological resources present or potentially present in and adjacent to the Project area.

Table 3.3.4-1. Plant and Animal Species Observed During Biological Surveys.

Common Name	Scientific Name	Family
Animals		
Mallard	*Anas platyrhynchos*	Anatidae
Great blue heron	*Ardea herodias*	Ardeidae
Cattle egret	*Bubulcus ibis*	Ardeidae
Turkey vulture	*Cathartes aura*	Cathartidae
American crow	*Corvus brachrhynchos*	Corvidae
Common raven	*Corvus corax*	Corvidae
Northern alligator lizard	*Elgaria coerulea*	Anguidae
Black-tailed jackrabbit	*Lepus californicus*	Leporidae
House sparrow	*Passer domesticus*	Passeridae
Ring-necked pheasant	*Phasianus colchicus*	Phasianidae
Raccoon	*Procyon lotor*	Procyonidae
Western fence lizard	*Sceloporus occidentalis*	Phrynosomatidae
California ground squirrel	*Spermophilus beecheyi*	Sciuridae
Mourning dove	*Zenaida macroura*	Columbidae
Plants		
Water plantain	*Alisma plantago-aquatica*	Alismataceae
Common fiddleneck	*Amsinckia menziesii var. intermedia*	Boraginaceae
Wild oat	*Avena fatua*	Poaceae
Black mustard	*Brassica nigra*	Brassicaceae
Ripgut	*Bromus rigidus* Roth.	Poaceae
Soft cheat grass	*Bromus hordeaceus*	Poaceae
Soft chess	*Bromus mollis*	Poaceae
Soft cheat grass	*Bromus secalinus* L.	Poaceae
Yellow-star thistle	*Centaurea solstitialis*	Asteraceae
Hedge bindweed	*Calystegia sepium*	Convolvulaceae
Poison hemlock	*Conium maculatum*	Apiaceae
Field bindweed	*Convolvulus arvensis*	Convolvulaceae
Umbrella sedge	*Cyperus eragrostis*	Cyperaceae
Common willow herb	*Epilobium ciliatum* ssp. *ciliatum*	Onagraceae
Redstem filaree	*Erodium cicutarium*	Geraniaceae
California poppy	*Eschscholzia californica*	Papaveraceae
Fennel	*Foeniculum vulgare*	Asteraceae
California mustard	*Guillenia lasiophylla*	Brassicaceae
Cow parsnip	*Heracleum lanatum*	Apiaceae
Foxtail barley	*Hordeum leporinum*	Poaceae
Mediterranean barley	*Hordeum marinum*	Poaceae
Baltic rush	*Juncus balticus*	Juncaceae
Common rush	*Juncus effusus*	Juncaceae
Prickly lettuce	*Lactuca serriola* L.	Asteraceae
Perennial rye grass	*Lolium perenne*	Poaceae
Common mallow	*Malva neglecta* Wallr.	Malvaceae
Cheeseweed	*Malva parviflora*	Malvaceae
Bur clover	*Medicago polymorpha*	Fabaceae
Phragmites	*Phragmites australis*	Poaceae
Bristly ox-tongue	*Picris echioides*	Asteraceae
Rabbitsfoot grass	*Polypogon monspeliensis* (L.) Desf.	Poaceae
Wild radish	*Rhaphanus sativus*	Brassicaceae
California blackberry	*Rubus ursinus*	Rosaceae
Curly dock	*Rumex crispus* L.	Polygonaceae
Willow	*Salix spp.*	Saliaceae
Common tule	*Scirpus acutus*	Cyperaceae
California bulrush	*Scirpus californicus*	Cyperaceae
Bulrush	*Scirpus microcarpus*	Cyperaceae
Spiny sowthistle	*Sonchus asper*	Asteraceae
Perennial sowthistle	*Sonchus arvensis* L.	Asteraceae
Annual sowthistle	*Sonchus oleraceus*	Asteraceae
Narrow-leaved cattail	*Typha angustifolia*	Typhaceae
Broad-leaved cattail	*Typha latifolia*	Typhaceae
Field corn	*Zea mays*	Poaceae


State Hwy 12
Kettleman Ln
State Rte 12
Proposed Pipeline Route
Legend
Proposed Pipeline Route
CNDDB Special-Status Species
Delta tule pea
Side-flowering skullcap
Suisun Marsh aster
Woolly rose-mallow
Source: California Department of Fish and Wildlife California Natural Diversity Database 2013.
0 0.05 0.1 0.2 Miles
Robert A. Booher Consulting
Environmental Planning & Management
3221 Quail Hollow Drive
Fairfield, California 94534
Telephone (707) 399-7835
BOULDIN - TYLER PIPELINE PROJECT
Figure 3.3.4.1-1 CNDDB Sensitive Species Occurrences
Three Rivers Acquisition Co., LLC
755 West Covell Road, Suite 100
Edmond, Oklahoma 73003
(405) 562-9219


River Entry
Tie-in Point to Existing Towne Exploration Company Tyler Island Farms 5-2 Gathering Line
Installation by Boring (Mokelumne River)
River Exit
State Rte 12
Installation by Trenching
H12 Exit
Summit Exploration (California), LLC DW 8-1 Well Site
H12 Entry
Legend
Proposed Pipeline Route
Bore Sections
Freshwater Emergent Wetland
0 0.025 0.05 0.1 Miles
Robert A. Booher Consulting
Environmental Planning & Management
3221 Quail Hollow Drive
Fairfield, California 94534
Telephone (707) 399-7835
BOULDIN - TYLER PIPELINE PROJECT
Figure 3.3.4.1-2 Wetland Delineation Map
Three Rivers Acquisition Co., LLC
755 West Covell Road, Suite 100
Edmond, Oklahoma 73003
(405) 562-9219

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Literature Review

RAB Consulting biologists independently reviewed databases and reports that address biological resources within the Project and surrounding area, including the *California Natural Diversity Database* (CNDDB) (CDFG 2012), the California Native Plant Society's (CNPS) *Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2012), and the United States Fish and Wildlife Service (USFWS) online electronic database of endangered species (USFWS 2012). Relevant technical information from these databases are incorporated and referenced as appropriate.

Reconnaissance Survey

RAB Consulting biologists conducted reconnaissance-level biological surveys of the Project, existing access roads, and buffer areas on August 23, 2010, and March 6, 2012. Habitat types encountered during the surveys were characterized primarily by dominant and subdominant plant species. Wildlife use of these areas was described based on known and inferred occurrences. Most species were recorded as present if they were observed, if species' vocalizations were heard, or if diagnostic field signs were found (i.e., scat, tracks, pellets). Some species known to occur in the region or for which suitable habitat is present onsite were recorded as "expected, but not observed." Plant taxonomy is based on *The Jepson Manual* (Hickman 1996), and wildlife taxonomy on Laudenslayer et al. (1991). Surveys were conducted within the proposed pipeline alignment, existing access roads, as well as a buffer area approximately 250 feet wide around these areas.

Special-status wildlife species (see Table 3.3.4-2) were surveyed for to determine the presence or absence of such species or their habitat. If a special-status wildlife species or population had been observed, digital photographs would have been taken, the individuals or populations would have been noted on a USGS 7.5-minute quad map, and the number of individuals present would have been estimated and recorded. If a special-status species or population were identified, a CNDDB field survey form would have been completed. In the case of the Project, biological surveys failed to document the presence of any special-status wildlife species or populations, and the preparation of the above-mentioned documentation was not required.

Surveys were conducted to identify the following:

1. Suitability of habitat(s) to support sensitive wildlife species;
2. Presence of wildlife species and their habitats;
3. Potential of the site to contain vernal pools, natural wetlands, inland blowout lakes/ponds;
4. Potential of the site to support sensitive small mammal species;
5. Potential of the site to support sensitive avian species (e.g., waterfowl, etc.);
6. Potential of the site(s) to support special status plant species;

7. Habitat condition, quality and vegetation associations; and
8. On-site, adjacent and surrounding land uses.

Special-status Plant Survey

Special-status plant surveys were conducted on August 23, 2010, and March 6, 2012, to coincide with the flowering period of sensitive plant species potentially occurring within the Project area. A review of the various special-status species databases and literature indicated that 10 special-status plant species had potential to occur in the Project and buffer area (see Table 3.3.4-2). Botanical surveys conducted during 2010 were conducted within the blooming period of nine of the 10 special-status plant species expected to potentially occur within these areas (surveys were not conducted during the blooming period of eel-grass pondweed – *Potamogeton zosteriformis*). Botanical surveys conducted during 2012 were conducted within the blooming period of one of the 10 special-status plant species expected to potentially occur within these areas (eel-grass pondweed). Surveys were floristic in nature (where possible), and were conducted in accordance with CDFW's *Guidelines for Assessing Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities* (2000). If a special-status plant species or population was observed, digital photographs were taken, the population was noted on a USGS 7.5-minute quad map, and an estimate of the number of individuals present, their phenology, and the associated vegetation were recorded. For each special-status plant species or population identified, a CNDDB field survey form was completed.

Rare plant surveys were performed using demographic survey techniques derived from the CNPS rare plant monitoring guidelines (CNPS 2001). These guidelines include conducting floristically based surveys, identifying to species level all plants encountered, or identifying to the level necessary to detect rare plants if present.

During field surveys, meandering transects were walked throughout the Project area, proposed and existing access roads, and buffer areas to ensure that all habitats present were surveyed. All plant species observed were identified to the level necessary to ensure that any special-status species present would be detected. Scientific and common nomenclature followed *The Jepson Manual* (Hickman 1996).

Results and Findings

A discussion of biological resources is provided below and includes a discussion of the vegetation communities and wildlife habitats known to occur within the Project area, existing access roads, and buffer areas, and special-status plants and wildlife that could potentially occur in these areas.

Habitats and Vegetation Communities

Vegetative communities identified within the Project and buffer area included ruderal/disturbed, agricultural field/agricultural wetland, and freshwater emergent wetland. Vegetative community designations are based on *A Guide to Wildlife Habitats of California* (Mayer and Laudenslayer 1988).

Vegetation communities and wildlife detected or commonly occurring within these habitats are discussed below. The value of the Project, proposed and existing access roads, buffer areas, and associated habitats to wildlife is also provided below. Table 3.3.4-1 lists plant and wildlife species observed during biological surveys.

Ruderal/Disturbed

The ruderal/disturbed vegetative community was observed within and immediately adjacent to the existing DW 8-1 Well, on the banks of the levees on the north and south sides of the River, within portions of the pipeline alignment that will be installed by trenching between the River and the 5-2 Line, and within and adjacent to existing access roads that would be used during construction. Common vegetative species found in this community included weedy non-native and weedy native species. Common species identified during the field visit included: wild oat (*Avena fatua*), black mustard (*Brassica nigra*), ripgut (*Bromus rigidus* Roth.), soft cheat grass (*Bromus hordeaceus*), soft chess (*Bromus mollis*), soft cheat grass (*Bromus secalinus* L.), yellow-star thistle (*Centaurea solstitialis*), hedge bindweed (*Calystegia sepium*), field bindweed (*Convolvulus arvensis*), redstem filaree (*Erodium cicutarium*), California poppy (*Eschscholzia californica*), fennel (*Foeniculum vulgare*), California mustard (*Guillenia lasiophylla*), cow parsnip (*Heracleum lanatum*), foxtail barley (*Hordeum leporinum*), prickly lettuce (*Lactuca serriola* L.), common mallow (*Malva neglecta* Wallr.), cheeseweed (*Malva parviflora),* bur clover (*Medicago polymorpha*), bristly ox-tongue (*Picris echioides*), wild radish (*Rhaphanus sativus*), spiny sowthistle (*Sonchus asper*), perennial sowthistle (*Sonchus arvensis* L.), and annual sowthistle (*Sonchus oleraceus*).

Although often comprised of non-native plant species, ruderal habitats, particularly at edges of natural communities, can provide foraging habitat for many species of birds and mammals. These habitats can be occupied by California ground squirrels and other rodents, and can potentially support special-status wildlife species, including burrowing owl (*Athene cunicularia*) nest sites and San Joaquin kit fox (*Vulpes macrotis mutica*) dens.

Agricultural Field/Agricultural Wetland

Large portions of the proposed pipeline alignment that will be installed via trenching methods were vegetated with the agricultural field/agricultural wetland community during the biological surveys. Agricultural fields/agricultural wetlands were either plowed

or planted to field corn at the time the biological surveys were conducted. Agricultural fields/agricultural wetlands were also observed covering large portions of the Project buffer area during biological surveys, and were either plowed or planted to field corn at the time the surveys were conducted. Agricultural wetlands are regulated under the jurisdiction of the USACE and RWQCB. Common species identified during the biological surveys consisted of field corn or limited ruderal/disturbed vegetation as described above.

The general Project area once supported a wide variety of wetlands and wetland vegetation prior to the construction of levees to control the flow of water and to drain area wetlands. Agricultural lands in the Project are currently plowed on a regular basis and planted to corn and other agricultural crops. No wetland vegetation is now present within these areas.

Freshwater Emergent Wetland

The freshwater emergent wetland vegetative community was observed within agricultural drainage ditches crossing the proposed pipeline alignment, along the edges of the proposed River HDD crossing, and within wetlands adjacent to portions of the northwest side of the pipeline alignment on Bouldin Island. This vegetative community was also observed within similar habitats found within the Project buffer area. Standing water was observed in this vegetative community at the time the surveys were conducted. Freshwater emergent wetlands are typically characterized by erect, rooted herbaceous hydrophytes. Dominant vegetation generally consists of perennial monocots up to 6.6 feet tall. All emergent wetlands are flooded frequently, enough so that the roots of the vegetation prosper in an anaerobic environment. The acreage of fresh emergent wetlands in California has decreased dramatically since the turn of the century due to drainage and conversion to other uses, primarily agriculture

Vegetative species observed during field surveys included water plantain (*Alisma plantago-aquatica*), poison hemlock (*Conium maculatum*), umbrella sedge (*Cyperus eragrostis*), common willow herb (*Epilobium ciliatum* ssp. *ciliatum*), Mediterranean barley (*Hordeum marinum*), Baltic rush (*Juncus balticus*), common rush (*Juncus effuses*), Perennial rye grass (*Lolium perenne*), phragmites (*Phragmites australis*), rabbitsfoot grass (*Polypogon monspeliensis*), California blackberry (*Rubus ursinus*), curly dock (*Rumex crispus*), willow (*Salix* spp.), common tule (*Scirpus acutus*), California bulrush (*Scirpus californicus*), bulrush (*Scirpus microcarpus*), narrow-leaved cattail (*Typha angustifolia*), and broad-leaved cattail (*Typha latifolia*).

Fresh emergent wetlands are among the most productive wildlife habitats in California. They provide food, cover, and water for more than 160 species of birds and numerous mammals, reptiles, and amphibians. Many species rely on fresh emergent wetlands for their entire life cycle. Wildlife species observed in this community during biological

surveys included mallard (*Anas platyrhynchos*), great blue heron (*Ardea herodias*), cattle egret (*Bubulcus ibis*), and mourning dove (*Zenaida macroura*).

Figure 3.3.4.1-2 shows the location of wetland habitat in the Project area. No freshwater emergent wetland habitat was observed within areas proposed for ground-disturbing activities during Project implementation.

Special-Status Biological Resources

The following is a discussion of the plant and wildlife species that have been afforded special recognition by federal, State, or local resource agencies and organizations. This discussion focuses on and summarizes species known or expected to occur within the Project study area. Legal protection is afforded to species listed as "threatened" or "endangered" under the Federal or California Endangered Species Acts or "fully protected" under the Fish and Game Code. The CDFW designates species as "California Species of Special Concern," because of declining population levels, limited ranges, and/or continuing threats that have made these species vulnerable to extinction. Sources used to determine the status of biological resources are as follows:

- Plants – CNDDB (CDFG 2012), USFWS (USFWS 2012), and CNPS (2012)
- Wildlife – CNDDB (CDFG 2012), USFWS (USFWS 2012), and Mayer and Laudenslayer (1988)
- Habitats – CNDDB (CDFG 2012) and Sawyer and Keeler-Wolf (1995)

Through an electronic search of the CNDDB and a literature review, 11 special-status plant species and 23 special-status animal species were identified as potentially occurring within the general Project region. Of these special-status species, 10 plant and 12 animal species were identified as potentially occurring within the Project area and buffer area. Table 3.3.4-2 provides a complete list of these species. Figure 3.3.4.1-1 illustrates the location of documented special-status plant and animal occurrences within the vicinity of the Project. Special-status plant and wildlife species, identified through the literature review and by regulatory agencies, which occur outside of the elevational or geographic range of the Project and buffer area, or for which no appropriate habitat is present within these areas, are not discussed further in this document. The following discussion focuses only on special-status species that could potentially occur within the area surveyed.

Special-Status Plant Species

Special-status plant surveys were conducted on August 23, 2010, and March 6, 2012, to coincide with the flowering period of sensitive plant species potentially occurring within the Project and buffer area. A review of the various special-status species databases and literature indicated that 10 special-status plant species had potential to occur in the Project and buffer areas (see Table 3.3.4-2). Botanical surveys conducted

during 2010 were conducted within the blooming period of nine of these species. Botanical surveys conducted during 2012 occurred within the blooming period of the tenth species (eel-grass pondweed).

Surveys for special-status plant species were conducted within the Project area and a buffer area approximately 250 feet wide around the Project area. The freshwater emergent wetland vegetative community was surveyed in particular because it was the only vegetative community present that provided potential habitat for special-status plant species. No special-status plant species were identified during the course of the botanical surveys; however, Delta tule pea, side-flowered skullcap, Suisun Marsh aster, and woolly rose-mallow, all special-status plant species, have been documented in the Project area previously by the CNDDB (CDFG 2012) (see Figure 3.3.4.1-1).

Special-Status Wildlife Species and Sensitive Habitats

A total of 12 wildlife species, including three birds, three mammals, two reptiles, and four fish species were identified during the literature search as potentially occurring within the Project and buffer area. A discussion of these species and their potential to occur within the survey area is included below.

Western Burrowing Owl

The western burrowing owl (*Athene cunicularia hypugea*) is a California species of special concern. Burrowing owls are small, partly diurnal owls that live in underground burrows. They occur in arid, open grasslands, deserts, and fallow areas adjacent to developed areas such as roadsides, airports, and campuses. Burrowing owls frequently occupy California ground squirrel burrows and range throughout the State where there is suitable grassland habitat. Conversion of open grasslands to agricultural use and ground squirrel control has caused widespread population declines (Zeiner et al. 1990, CDFG 2012).

Potential foraging and nesting habitat for the western burrowing owl was observed throughout the Project and buffer areas during biological surveys. No western burrowing owls, signs of their activity (i.e., pellets, whitewash, feathers, etc.), or active burrow/nest sites were observed within the Project or buffer area during surveys; however, California ground squirrels and their burrows were observed within the Project and buffer area during surveys. These burrows provide potential nesting habitat for burrowing owls, should burrowing owls become established within the Project or buffer area. At the time of the surveys, these burrows were in use by California ground squirrels. California ground squirrels are highly aggressive, and their presence likely precludes the use of their burrows by burrowing owls. Burrowing owls have not been documented in the Project area previously by the CNDDB (CDFG 2012) (see Figure 3.3.4.1-1).

Swainson's Hawk

Swainson's hawk (Buteo swainsoni), a State threatened species, is an uncommon breeding resident and migrant in the Central Valley. The nesting lifestage of this species is considered sensitive by CDFW. Breeding and nesting primarily occur in riparian woodland habitats and oak savannah of the Central Valley, and often take place near water, but some nesting in urban woodland areas has also been recorded. This species forages in adjacent agricultural fields, grasslands, and open pasture and individuals have been known to forage as much as 20 miles from their nesting site. Small mammals, amphibians, reptiles, birds, and occasionally fish make up the diet of this species. Swainson's hawk often roosts in large trees but will sometimes roost on the ground. Nests consist of a platform of sticks, bark, and fresh leaves constructed in a tree, bush or utility pole from 4 to 100 feet above ground. Breeding occurs from late March to late August, with peak activity in late May through July. Incubation is about 25 to 28 days. Migrating individuals typically move south through California in September and October and move back to their summer range in March through May (Zeiner et al. 1990).

Potential foraging habitat for the Swainson's hawk was observed throughout the Project and buffer area during biological surveys. Potential nesting habitat for this species was observed in a grove of eucalyptus trees approximately 480 feet west of the northern section of the proposed pipeline alignment. However, no Swainson's hawks or their nesting sites (active or inactive) were observed during biological surveys. Swainson's hawks have not been documented in the Project area previously by the CNDDB (CDFG 2012) (see Figure 3.3.4.1-1).

White-Tailed Kite

The white-tailed kite (*Elanus leucurus*) has no federal status, and is a California fully protected species. The white-tailed kite inhabits low elevation, open grasslands, savannah-like habitats, agricultural areas, wetlands, and oak woodlands. Riparian areas adjacent to open areas are also used. The species preys mostly on voles and other small, diurnal mammals, occasionally on birds, insects, reptiles, and amphibians. To hunt, it soars, glides, and hovers less than 100 feet above the ground in search of prey (Zeiner et al. 1990, CDFG 2012). The white-tailed kite uses trees with dense canopies for cover: the specific plant associations seem to be unimportant, with the vegetation structure and prey abundance apparently more important. Substantial groves of dense, broad-leafed deciduous trees are used for nesting and roosting (Zeiner et al. 1990, CDFG 2012). It makes a nest of loosely piled sticks and twigs that are lined with grass, straw, or rootlets. The nest is placed near the top of a dense oak, willow, or other tree stand, usually 20 to 100 feet above ground in trees that vary from 15 to 150 feet in height. The nest is located near an open foraging area. It is monogamous, and breeds

from February to October, with a peak from May to August (Zeiner et al. 1990, CDFG 2012).

By the 1930s, the California population of the white-tailed kite was reduced by habitat loss, shooting and possibly egg collecting. Threats to this species are likely the result of conversion of natural or agricultural lands to urban or commercial property, clean farming techniques that leave few residual vegetation areas for the prey, increased competition for nest-sites with other raptors and corvids, a relatively long-term drought throughout California during much of the time from 1982 to 1991, and increased disturbances at nest sites (Zeiner et al. 1990, CDFG 2012).

In California today, the white-tailed kite is a common to uncommon, year-long resident in coastal and valley lowlands, and is rarely found away from agricultural areas. It inhabits herbaceous and open stages of most habitats mostly in cismontane California, and has extended its range and increased numbers in California in recent decades. Although apparently a resident bird throughout most of its breeding range, dispersal occurs during the non-breeding season, resulting in some range expansion during the winter (Zeiner et al. 1990, CDFG 2012).

Potential foraging habitat (i.e., rolling foothills and valley margins with marshlands) for the white-tailed kite was identified within the Project and buffer area during biological surveys. This species has the potential to forage intermittently within wetlands and adjacent upland areas in the Project and buffer area. Potential nesting habitat for this species was observed within scattered willow trees found within the freshwater emergent wetland vegetative community (the River and agricultural drainage ditches). No individual white-tailed kites were observed during the field survey, nor were any nest sites (active or inactive) observed. This species has not been documented in the Project area previously by the CNDDB (CDFG 2012) (see Figure 3.3.4.1-1).

Other Raptor Species

Potential nesting habitat for other raptor species was not identified in the Project or buffer area during biological surveys. Raptors may forage intermittently within any of the vegetative communities observed in the Project or buffer area. No individual raptors were observed during field surveys, nor were raptor nesting sites (active or inactive) observed.

Migratory Avian Species

Potential foraging and nesting habitat for migratory avian species was identified within both the Project and buffer area during biological surveys. Individual migratory bird species were observed during field surveys, including turkey vultures, American crows, common ravens, and mourning doves. No migratory avian species nests (active or inactive) were observed during surveys.

Western Red Bat

The western red bat (*Lasiurus blossevillii*) is a California species of special concern species that is locally common in some areas of California, occurring from Shasta County to the Mexican border, west of the Sierra Nevada range and the deserts. The winter range includes western lowlands and coastal regions south of San Francisco Bay. Roosting habitat includes forests and woodlands. The western red bat roosts primarily in trees, often in edge habitats adjacent to streams, fields, or urban areas. Mating occurs in August and September and young are born from late May through early July (Zeiner et al. 1990).

Potential foraging habitat for the western red bat was observed within both the Project and buffer areas during biological surveys. Pallid bats may forage intermittently within all the vegetative communities observed in the Project and buffer areas; however no western red bats, nor any roosting or maternity habitat or sites, were observed during biological surveys, and this species has not been documented in the Project area by the CNDDB (CDFG 2012) (see Figure 3.3.4.1-1).

Riparian Brush Rabbit

The riparian brush rabbit (*Sylvilagus bachmani riparius*) is a federally and California endangered species. The riparian brush rabbit is a small cottontail that is secretive by nature. Riparian brush rabbits prefer dense, brushy areas of valley riparian forests, marked by extensive thickets of wild rose, blackberries, and willows. For the most part, riparian brush rabbits remain hidden under protective shrub cover. They feed at the edges of shrub cover rather than in large openings, and seldom venture more than a few feet from cover. Their diet consists of herbaceous vegetation, such as grasses, sedges, clover, forbs, and buds, bark, and leaves of woody plants (CDFG 2012, USFWS 2012).

The approximate breeding season of riparian brush rabbits occurs from January to May. Although males are capable of breeding all year long, females are only receptive during this period. The young are born in a shallow burrow or cavity lined with grasses and fur and covered by a plug of dried vegetation. Although these rabbits have a high reproductive rate, five out of six rabbits typically do not survive to the next breeding season (CDFG 2012, USFWS 2012).

Potential foraging and nesting habitat for the riparian brush rabbit (*Sylvilagus bachmani riparius*) was observed within the freshwater emergent wetland vegetative community during biological surveys. No individual riparian brush rabbits were observed during biological surveys, nor has this species been documented in the Project area by the CNDDB (CDFG 2012) (see Figure 3.3.4.1-1).

San Joaquin Kit Fox

The San Joaquin kit fox (*Vulpes macrotis mutica*) is a federally endangered species and a State threatened species. The kit fox, of which the San Joaquin kit fox is a subspecies, is the smallest of all North American canids and is closely associated with arid grassland/scrub and steppe habitats. Physically, the San Joaquin kit fox is characterized by small size, narrow body, large and conspicuous ears, and long, bushy tail (~ 40 percent of body length) (Zeiner et al. 1990, CDFG 2012).

San Joaquin kit foxes inhabit grassland/saltbush scrub habitats of the San Joaquin Valley floor and surrounding foothills. Dens are typically established in excavated burrows, but may be established in culverts, pipes, or under structures. Kit fox diets are composed primarily of nocturnal rodents and leporids, but may also include fruits, birds, and insects. Their historic distribution encompassed much of the San Joaquin Valley floor and the bordering foothills, stretching from Contra Costa and Stanislaus Counties in the north to Kern County in the south, but its range has since been much restricted. Small populations are also located in valleys of the interior Coast Ranges of Monterey and San Luis Obispo Counties (Zeiner et al. 1990, CDFG 2012).

Potential foraging habitat for the San Joaquin kit fox was observed throughout the Project and buffer area during biological surveys. No potential or known dens of an appropriate size for use by the San Joaquin kit fox were observed in the Project or buffer area during biological surveys. RAB Consulting visited the Project on two separate occasions during 2010 and 2012, and observed no “signs” (tracks, scats, active digging, etc.) of this species. This species has not been documented in the Project area previously by the CNDDB (CDFG 2012) (see Figure 3.3.4.1-1).

Special-Status Fish Species

Potential habitat for green sturgeon (*Acipenser medirostris*), delta smelt (*Hypomesus transpacificus*), central valley steelhead (*Oncorhynchus mykiss*), Chinook salmon (*Oncorhynchus tshawytscha*), and Sacramento splittail (*Pogonichthys macrolepidotus*) occurs within the River under which the proposed pipeline will be installed via HDD methods. These species have not been documented within the Project area by the CNDDB (CDFG 2012) (see Figure 3.3.4.1-1). However, these fish species have been recorded in the greater San Francisco Bay and Delta, and are likely present within the River during portions of the year.

Green Sturgeon: The green sturgeon is a federally threatened species and a California species of special concern. Green sturgeon is an anadromous fish that spawn in the Sacramento River and its tributaries in the San Joaquin-Sacramento Delta. They spend time in fresh water only while young and spawning. Adult fish and older juveniles are commonly found in estuaries and marine environments, including San Francisco Bay. Sturgeons in general are highly vulnerable to habitat alteration and over-fishing due to

their specialized habitat requirements, the long time it takes them to reach breeding maturity, and their sporadic reproductive success. They are slow-growing and late-maturing fish that apparently spawn every 4 to 11 years during the spring and summer months (Zeiner et al. 1990, CDFG 2012).

Delta Smelt: The delta smelt is a California and federally threatened species. Estuarine rearing habitat for juvenile and adult delta smelt is typically found in the waters of the lower Delta and Suisun Bay, where salinity is between 2 and 7 parts per thousand. Delta smelt tolerate a salinity range of 0 to 19 parts per thousand. They typically occupy open shallow waters but also occur in the main channel in the region where freshwater and brackish water mix. The zone may be hydraulically conducive to their ability to maintain position and metabolic efficiency.

Adult delta smelt begin spawning migration into the upper Delta in December or January, and migration may continue over several months. Spawning occurs between January and July, with peak spawning during April through mid-May. Spawning occurs in along the channel edges in the upper Delta, including the Sacramento River above Rio Vista, Cache Slough, Lindsey Slough, and Barker Slough. Spawning has been observed in the Sacramento River up to Garcia Bend during drought conditions, possibly attributable to adult movement farther inland in response to saltwater intrusion. Eggs are broadcast over the bottom, where they attach to firm substrate, woody material, and vegetation. Hatching takes approximately 9 to 13 days, and larvae begin feeding 4 to 5 days later. Newly hatched larvae contain a large oil globule and are semibuoyant. Larval smelt feed on rotifers and other zooplankton. As their fins and swim bladder develop, they move higher into the water column. Larvae and juveniles gradually move downstream toward rearing habitat in the estuarine mixing zone (Zeiner et al. 1990, CDFG 2012).

Central Valley Steelhead: Central Valley steelhead is a federally threatened species. Steelhead, an anadromous variant of rainbow trout, is closely related to Pacific salmon. The species was once abundant in California coastal and Central Valley drainages, but population numbers have declined significantly in recent years, especially in the tributaries of the Sacramento River. Steelhead typically migrate to marine waters after spending 1 year or more in freshwater. In the marine environment, they typically mature for 1 to 3 years before returning to their natal stream to spawn as 3- or 4-year-olds. Unlike other Pacific salmon, steelhead are capable of spawning more than once before they die. The steelhead spawning season typically stretches from December through April. After several months, fry emerge from the gravel and begin to feed. Juveniles rear in freshwater from 1 to 4 years (usually 2 years), then migrate to the ocean as smolts (Zeiner et al. 1990, CDFG 2012).

Chinook Salmon: Four distinct runs of Chinook salmon (*Oncorhynchus tshawytscha*) occur in the San Joaquin-Sacramento Delta system: winter run, spring run, fall run, and

late fall run. Chinook salmon are anadromous, meaning that adults live in marine environments and return to their natal freshwater streams to spawn. Juveniles rear in freshwater for a period of up to 1 year until smoltification (i.e., a physiological preparation for survival in marine environs) and subsequent ocean residence. Each distinct run is described in further detail below.

- Central Valley Winter-run Chinook salmon are listed as both a California and federally endangered species. Critical habitat for the winter-run Chinook salmon includes the Sacramento River from Keswick Dam (River Mile 302) to Chipps Island (River Mile 0) in the Delta (CDFG 2012, Zeiner et al. 1990). Adult winter-run Chinook salmon immigration (upstream migration) through the Delta and into the Sacramento River occurs from December through July, with peak immigration from January through April. Winter-run Chinook salmon primarily spawn in the mainstem Sacramento River between Keswick Dam (River Mile 302) and the Red Bluff Diversion Dam (River Mile 242) between late April and mid-August, with peak spawning generally occurring in June (CDFG 2012, Zeiner et al. 1990). Juvenile emigration (downstream migration) past the Red Bluff Diversion Dam (River Mile 242) begins in late July, peaks during September, and may extend through mid-March. The peak period of juvenile emigration through the lower Sacramento River into the Delta generally occurs between January and April (CDFG 2012, Zeiner et al. 1990). Differences in peak emigration periods between these two locations suggest that juvenile winter-run Chinook salmon may exhibit a sustained residence in the upper or middle reaches of the Sacramento River before entering the lower Sacramento River/Delta. Although the location and extent of rearing in these lower or middle reaches is unknown, it is believed that the duration of fry presence in an area is directly related to the magnitude of river flows during the rearing period (CDFG 2012, Zeiner et al. 1990).

- Central Valley Spring-run Chinook salmon, which includes populations spawning in the Sacramento River and its tributaries, are listed as a California and federally threatened species. Spring-run Chinook salmon historically inhabited a range extending from the upper tributaries of the Sacramento River to the upper tributaries of the San Joaquin River, but have been extirpated from the San Joaquin River system. The only streams in the Central Valley with remaining wild spring-run Chinook salmon populations are the Sacramento River and its tributaries, including the Yuba River, Mill Creek, Deer Creek, and Butte Creek (CDFG 2012, Zeiner et al. 1990). Spring-run Chinook salmon enter the Sacramento River from late March through September, but peak abundance of immigrating adults in the Delta and lower Sacramento River occurs from April through June. Adult spring-run Chinook salmon remain in deep-water habitats downstream of spawning areas during summer until their eggs fully develop and become ready for spawning. This is the primary characteristic that distinguishes

spring-run Chinook salmon from the other runs. Spring-run Chinook salmon spawn primarily upstream of the Red Bluff Diversion Dam and in the aforementioned tributaries. Spawning occurs from mid-August through early October. A small portion of an annual year-class may emigrate as postemergent fry (less than 45 millimeters long) and reside in the Delta undergoing smoltification. However, most are believed to rear in the upper river and tributaries during winter and spring, emigrating as juveniles (more than 45 millimeters long). The timing of juvenile emigration from the spawning and rearing reaches can vary depending on tributary of origin and can occur from November through June (CDFG 2012, Zeiner et al. 1990).

- Central Valley fall-run and late fall–run Chinook salmon are important commercially and recreationally. They are designated as a federal candidate for listing under the Federal ESA, and have no status under California law. Because fall-run Chinook salmon are the largest of the four runs in the Sacramento River system, they continue to support commercial and recreational fisheries of significant economic importance (CDFG 2012, Zeiner et al. 1990). In general, adult fall-run Chinook salmon migrate into the Sacramento River and its tributaries from July through December, with immigration peaking from mid-October through November. Fall-run Chinook salmon spawn in numerous tributaries of the Sacramento River, including the lower American River, lower Yuba River, Feather River, and tributaries of the upper Sacramento River. Most mainstem Sacramento River spawning occurs between Keswick Dam and the Red Bluff Diversion Dam. A greater extent of fall-run spawning, relative to the other three runs, occurs below the Red Bluff Diversion Dam, with limited spawning potentially occurring as far downstream as Tehama (River Mile 220). Spawning generally occurs from October through December, with fry emergence typically beginning in late December and January. Fall-run Chinook salmon emigrate as post-emergent fry, juveniles, and smolts after rearing in their natal streams for up to 6 months. Consequently, fallrun emigrants may be present in the lower Sacramento River from January through June and remain in the Delta for variable lengths of time before ocean entry (CDFG 2012, Zeiner et al. 1990). Adult immigration of late fall–run Chinook salmon into the Sacramento River generally begins in October, peaks in December, and ends in April. Primary spawning areas for late fall–run Chinook salmon are located in tributaries of the upper Sacramento River (e.g., Battle Creek, Cottonwood Creek, Clear Creek, Mill Creek), although late fall–run Chinook salmon are believed to return to the Feather and Yuba Rivers as well. Spawning in the mainstem Sacramento River occurs primarily from Keswick Dam (River Mile 302) to the Red Bluff Diversion Dam (River Mile 258), generally from January through April. Juveniles emigrate through the lower Sacramento River primarily from October through April (CDFG 2012, Zeiner et al. 1990).

Western Pond Turtle

The western pond turtle (*Emys marmorata*) is a California species of special concern. Western pond turtles occur in western and central California from southern California to the Pacific Northwest. The western pond turtle is thoroughly aquatic, preferring the quiet waters of ponds, reservoirs, and sluggish streams. The species occurs in a wide range of both permanent and intermittent aquatic environments. Western pond turtles spend a considerable amount of time basking on rocks, logs, emergent vegetation, mud or sand banks, or human-generated debris. They move up to 1,300 feet or more to upland areas adjacent to watercourses to deposit eggs and overwinter. Western pond turtles typically become active in March and return to overwintering sites by October or November (Zeiner et al. 1990, CDFG 2012).

Potential breeding and foraging habitat (i.e., emergent marsh with permanent water and aquatic vegetation) for the northwestern pond turtle was observed within agricultural drainage ditches crossing the proposed pipeline alignment and the Mokelumne River bore crossing. Potential habitat was also observed within similar habitats found within the Project buffer area. Appropriate upland nesting habitat (non-native annual grassland) was not observed within the Project and buffer area during biological surveys. This species could potentially nest in the ruderal/disturbed vegetative community adjacent to aquatic habitat found in the Project and buffer area; however, this upland nesting habitat is lower in quality. No individual western pond turtles were observed during biological surveys. This species has not been documented within the Project area by the CNDDB (CDFG 2012) (see Figure 3.3.4.1-1).

Giant Garter Snake

The giant garter snake (*Thamnophis gigas*) (GGS) is a federally and State-listed threatened species. Historically, giant garter snakes were found in the Sacramento and San Joaquin Valleys from Butte County south to Buena Vista Lake in Kern County. Today, populations are found only in the Sacramento Valley and isolated portions of the San Joaquin Valley as far south as Fresno County (USFWS 2012, Zeiner et al. 1990, CDFG 2012). GGS typically inhabit sloughs, marshes, and drainage canals characterized by slow flowing or standing water, permanent summer water, mud bottoms, earthen banks, and an abundance of preferred forage species. The GGS is highly aquatic, but avoids areas of dense riparian overstory, preferring stands of emergent aquatic vegetation, such as bulrushes and cattails, and herbaceous terrestrial cover composed of annual and perennial grasses, blackberry, and mustard. GGS rely on canals and ditches as movement corridors. These corridors are vital to GGS dispersal and, most importantly, for continuing genetic exchange between subpopulations. Un-vegetated canals may be used as disposal corridors, but they typically do not remain in exposed canals due to increased vulnerability to predators. Essential habitat components required by GGS include:

- Adequate water during the snake's active period (early spring through mid-fall) to provide a prey base and cover;
- Emergent, herbaceous wetland vegetation, such as cattail and bulrushes, for escape cover and foraging habitat; and
- Upland habitat for basking, cover, and retreat sites, and refuge from floodwaters.

GGS have the potential to occur within agricultural drainage ditches crossing the proposed pipeline alignment and the Mokelumne River HDD crossing. Potential habitat was also observed within similar habitats found within the Project buffer area. Potential nesting and aestivation burrows were observed along the banks of the drainage ditches and the River within the Project and buffer area during biological surveys. Upland habitat adjacent to this aquatic habitat consisted of agricultural fields that are low in quality as use for aestivation habitat. No individual giant garter snakes were observed during biological surveys. This species has not been documented within the Project area by the CNDDB (CDFG 2012) (see Figure 3.3.4.1-1).

3.3.4.2 Regulatory Setting

This section identifies and discusses the regulations and policies administered by resource agencies pertaining to those biological resources that are known to exist and/or have the potential to occur within the Project and adjacent areas.

Federal

Federal Endangered Species Act (FESA) (7 USC 136, 16 USC 1531 et seq.). The FESA, which is administered in California by the USFWS and the National Marine Fisheries Service (NMFS), provides protection to species listed as threatened or endangered, or proposed for listing as threatened or endangered. Section 9 of the FESA prohibits the "take" of any member of a listed species. Take is defined as "...to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Harass is "an intentional or negligent act or omission that creates the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavior patterns that include, but are not limited to, breeding, feeding, or sheltering." Harm is defined as "...significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering."

When applicants are proposing projects with a federal nexus that "may affect" a federally listed or proposed species, the federal agency is required to consult with USFWS or NMFS, as appropriate, under Section 7 of the FESA. Section 7 of the FESA provides that each federal agency must ensure, in consultation with the Secretary of the Interior or Commerce, that any actions authorized, funded, or carried out by the agency are not likely to jeopardize the continued existence of any endangered or threatened

species or result in the destruction or adverse modification of areas determined to be critical habitat. The USACE, as the federal permitting agency and nexus for the Project, is initiating Section 7 consultation with the USFWS and NMFS.

Magnuson-Stevens Fishery Conservation and Management Act and Sustainable Fisheries Act of 1996 (16 USC 1801 et seq.). The Magnuson-Stevens Fishery Conservation and Management Act is intended to result in processes to conserve and manage fishery resources. Projects likely to affect federally managed fishery species are required to assess the project's likely impact on Essential Fish Habitat.

Migratory Bird Treaty Act (MBTA) (16 USC 703-712). The MBTA bars the take, possession, purchase, sale, or barter of any migratory bird listed in 50 CFR section 10 or their parts, nests, or eggs. Certain game bird species are allowed to be hunted for specific periods determined by federal and State governments. The intent of the MBTA is to eliminate any commercial market for migratory birds, feathers, or bird parts, especially for eagles and other birds of prey.

Rivers and Harbors Act (33 USC 401). Section 10 of the Rivers and Harbors Act limits the construction of structures and the discharge of fill into navigable waters of the U.S. This regulation is used by the USACE to control, and permit, the placing of structures or the operation of vessels within the waters of the U.S. Several Nationwide Permits, which are used to authorize specific activities that have been previously assessed under the National Environmental Policy Act (NEPA), provide an expedited permitting process for the more “routine” in-water construction activities such as placing scientific equipment, construction of pipelines, and placing shoreline protective devices.

Clean Water Act (CWA) (33 USC 1251 et seq.). The CWA is comprehensive legislation that generally includes reference to the federal Water Pollution Control Act of 1972, its substantial supplementation by the CWA of 1977, and subsequent amendments. As the U.S. primary law protecting water quality, the CWA sets water quality standards for surface water and discharge effluents into waters of the U.S. Implemented by the EPA, often issued through the State Water Resources Control Board (SWRCB), RWQCBs, and USACE. Permits are issued under CWA Section 404 (dredge and fill) and Section 401 (water quality certification). The CWA also provides for a permitting system to control discharges to surface waters. State operation of the program is encouraged.

State

California Endangered Species Act (CESA) (Fish & G. Code, § 2050 et seq.). The CDFW administers a number of laws and programs designed to protect fish and wildlife resources. Principal of these is the CESA, which regulates the listing and take of State endangered (SE) and threatened species (ST). Under section 2081 of CESA, CDFW may authorize take of an endangered and/or threatened species, or candidate species

by permit or Memorandum of Understanding for scientific, educational, or management purposes, or for the incidental take associated with implementation of a project.

CDFW administers other State laws designed to protect wildlife and plants. Under Fish and Game Code sections 3511, 4700, 5050, and 5515, CDFW designates species that are afforded fully protected (FP) status. Under this protection, CDFW may authorize take or capture of a designated species for "...necessary scientific research, including efforts to recover fully protected, threatened, or endangered species" and "...live capture and relocation of those species pursuant to a permit for the protection of livestock." Fish and Game Code section 3503 prohibits the needless destruction of the nests and eggs of all birds; section 3503.5 protects all birds of prey, their eggs, and their nests.

California Streambed Alteration Program (Fish & G. Code §§ 1600-1616). The Streambed Alteration Program regulates activities that would "substantially divert or obstruct the natural flow of, or substantially change the bed, channel, or bank of, or use material from the streambed of a natural watercourse" that supports wildlife resources. The Project would result in work under the bed of the Mokelumne River, and as such, requires a Streambed Alteration Agreement from the CDFW.

California Aquatic Invasive Species Management Plan. In 2008 the State of California developed a plan to control the introduction and spread of non-native species within the aquatic and marine waters of the State. That plan proposes management actions for addressing aquatic invasive species (AIS) threats to the State of California. It focuses on the non-native algae, crabs, clams, fish, plants and other species that continue to invade California's creeks, wetlands, rivers, bays and coastal waters.

California Native Plant Protection Act of 1977 (Fish & G. Code, § 1900 et seq.). CDFW also manages the California Native Plant Protection Act, which was enacted to identify, designate and protect rare plants. In accordance with CDFW guidelines, California Native Plant Society 1B list plants are considered "rare" under the Act, and are evaluated as special-status species under CEQA.

Porter-Cologne Water Quality Control Act (Porter-Cologne) (Cal. Water Code, § 13000 et seq.). Porter-Cologne mandates that waters of the State shall be protected, such that activities which may affect waters of the State shall be regulated to attain the highest quality (see Section 3.3.8, Hydrology and Water Quality).

Local

Sacramento County General Plan. The Conservation Element of the Sacramento County General Plan includes policies that protect natural resources such as wetlands, vernal pools, streams and rivers, riparian habitat, woodlands, and native trees. When impacts to these natural resources cannot be avoided during development, certain policies require mitigation to ensure that impacts are minimized and that there is no net

loss of the affected resource. The purpose of the Conservation Element is to manage and protect the County's natural resources for the use and enjoyment of present and future generations while maintaining the long-term ecological health and balance of the environment. The following provides goals and policies applicable to the Project.

- AG-10 - The County shall balance the protection of prime, statewide importance, unique and local importance farmlands and farmlands with intensive agricultural investments with the preservation of natural habitat so that the protection of farmland can also serve to protect habitat.
- CI-60 - Encourage maintenance of natural roadside vegetation and landscaping with native plants which usually provide the best habitats for native wildlife.
- CO-25 - Support the preservation, restoration, and creation of riparian corridors, wetlands and buffer zones.
- CO-69 - Avoid, to the extent possible, the placement of new major infrastructure through preserves unless located along disturbed areas, such as existing roadways.
- CO-70 - Community Plans, Specific Plans, Master Plans and development projects shall: include the location, extent, proximity and diversity of existing natural habitats and special status species in order to determine potential impacts, necessary mitigation and opportunities for preservation and restoration; be reviewed for the potential to identify nondevelopment areas and establish preserves, mitigation banks and restore natural habitats, including those for special status species, considering effects on vernal pools, groundwater, flooding, and proposed fill or removal of wetland habitat; and be reviewed for applicability of protection zones identified in this Element, including the Floodplain Protection Zone, Stream Corridor Ordinance, Cosumnes River Protection Combining Zone and the Laguna Creek Combining Zone.
- CO-75 - Maintain viable populations of special status species through the protection of habitat in preserves and linked with natural wildlife corridors.
- CO-91 - Discourage introductions of invasive non-native aquatic plants and animals.
- CO-134 - Maintain and establish a diversity of native vegetative species in Sacramento County.
- OS-1 - Actively plan to protect, as open space, areas of natural resource value, which may include but are not limited to wetlands preserves, riparian corridors, woodlands, and floodplains associated with riparian drainages.
- OS-2 - Maintain open space and natural areas that are interconnected and of sufficient size to protect biodiversity, accommodate wildlife movement and sustain ecosystems.

- OS-9 - Open space easements obtained and offered as mitigation shall be dedicated to the County of Sacramento, an open space agency, or an organization designated by the County to protect and manage the open space. Fee title of land may be dedicated to the County, the open space agency, or organization provided it is acceptable to the appropriate department or agency.

The major goal outlined in the Conservation Element of the General Plan is for the management and protection of natural resources for the use and enjoyment of present and future generations, while maintaining the long-term ecological health and balance of the environment. In addition to the Conservation Element goals and objectives, the Open Space Element further identifies two key concepts that form the basis of the goals, objectives and policies contained in the element: (1) protecting the urban edge and (2) establishing natural area linkages.

Sacramento County Tree Ordinance. Chapter 19 of the Sacramento County Code is the Tree Ordinance, which is the policy of the County to plant, maintain, protect, preserve, and regulate public trees and to provide for the special protection of heritage and landmark trees within the unincorporated area of the County. The Tree Preservation and Protection (Chapter 19.12) section of the Tree Ordinance finds that the purpose and intent of the section is as follows: Over the years, the vast majority of these trees have been cleared to accommodate agriculture, burned as firewood and removed to facilitate urban development. Only a small vestige of the original oak woodland forests remains today. The removal of oak trees continues to the present time, and occurs at a much faster pace than natural regeneration. Thus, it has become imperative that an ordinance be established to preserve and protect remaining native oak trees as significant, integral, and outstanding examples of the historical heritage of Sacramento County. Furthermore, it is recognized that the preservation of trees enhances the natural scenic beauty, sustains the long-term potential increase in property values which encourages quality development, maintains the original ecology, retains the original tempering effect of extreme temperatures, increases the attractiveness of the County to visitors, helps to reduce soil erosion, and increases the oxygen output of the area which is needed to combat air pollution. The Tree Preservation and Protection section of the Tree Ordinance states that it is the policy of the County to preserve all trees possible through its development review process.

San Joaquin County General Plan. The San Joaquin County General Plan outlines objectives, policies and implementation measures related to natural resources within the Project area. Objectives of the General Plan call for the protection and improvement of vegetation, fish and wildlife resources in the County and to provide undeveloped open space for nature study, protection of endangered species, and preservation of wildlife habitat. Specific policies call for the protection of significant biological and ecological resources, including wetlands, riparian areas, rare, threatened, and endangered species and their habitats, potentially rare or commercially important species, vernal pools,

significant oak groves and heritage trees. The General Plan outlines implementation measures intended to protect special-status species and their habitats and trees, to preserve and restore natural habitats for wildlife, to preserved and restore wetlands and riparian habitat, and to seek ways to acquire natural areas.

San Joaquin County Multi-Species Habitat Conservation and Open Space Plan. San Joaquin County is a signatory to the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP). Participation in the SJMSCP, which is voluntary, satisfies the requirements of FESA and CESA, and ensures that potential impacts to special-status species are mitigated to a less than significant level in compliance with CEQA. The Plan provides incidental take authorization for 97 listed and non-listed plant, fish, and wildlife species and provides compensation for habitat losses through collection of fees that are used to preserve habitats elsewhere.

3.3.4.3 Impact Analysis

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Impacts to Special-Status Plant Species

No special-status plant species were identified during the course of the botanical surveys; however, Delta tule pea, side-flowered skullcap, Suisun Marsh aster, and woolly rose-mallow, all special-status plant species, have been documented in the Project area previously by the CNDDB (CDFG 2012) (see Figure 3.3.4.1-1). No ground-disturbing activities are proposed within freshwater emergent wetland habitat, and no impacts to this vegetative community are expected. As all the special-status plant species potentially occurring in the Project area only occur within freshwater emergent wetland habitat, and because no impacts to this vegetative community will occur during the Project, no impacts to special-status plant species are expected to occur during Project implementation, and no further plant surveys or other mitigation measures are necessary to protect these plant species.

Impacts to Nesting Special-Status Avian Species

Implementation of the Project could potentially result in significant impacts to nesting special-status avian species by causing abandonment of nests and destruction of active nest sites. Western burrowing owls, Swainson's hawk, white-tailed kite, and migratory bird species (protected by the MBTA and other State and federal protection acts) have the potential to nest within the vegetative communities observed within the Project alignment and adjacent areas. Swainson's hawks, white-tailed kites, and migratory bird species would not be impacted by direct disturbance of nesting sites. Instead, they

could be indirectly impacted by the visual presence of humans and construction equipment, and noise and vibration related to Project construction activities. Burrowing owls have the potential to nest in agricultural lands found within the Project where ground disturbance activities would occur; their nest sites, then, could be directly impacted by ground disturbance activities, or indirectly impacted by the noise and vibration created by construction activities, and the visual presence of humans and construction equipment in the Project work areas and access roadways. No evidence of these species or active/inactive nest sites of these species was observed during biological surveys; however, these species have the potential to become established in the Project and buffer area prior to Project implementation.

Impacts to nesting special-status avian species would be considered a potentially significant effect; however, the implementation of Mitigation Measures (MMs) **BIO-1**, **BIO-2**, **BIO-3**, **BIO-4** and **BIO-10**, described below, would avoid or reduce impacts to this special-status wildlife species to a less than significant level.

Impacts to Special-Status Mammal Species from Project Implementation

Riparian Brush Rabbit

Implementation of the Project could result in impacts to potential foraging and nesting habitat of the riparian brush rabbit. No evidence of the presence of this species was observed during biological surveys, and this species is presumed to be absent from areas proposed for ground-disturbance as these areas are located within active agricultural lands. However, the species may still become present in the Project area prior to construction. Portions of the proposed pipeline would be installed near existing agricultural drainage ditches with freshwater emergent wetland that could provide potential habitat for this species. If the species were present during Project construction and entered construction areas, without mitigation, individuals of this species could potentially be injured or killed by construction activities.

Impacts to riparian brush rabbit would be considered a potentially significant effect; however, the implementation of MMs **BIO-1**, **BIO-2**, **BIO-5** and **BIO-10** would avoid or reduce impacts to this special-status wildlife species, and would therefore reduce impacts to a less than significant level.

San Joaquin Kit Fox

RAB Consulting observed no evidence of San Joaquin kit fox or any potential/known burrows within areas proposed for ground or buffer areas during biological surveys. Nor were any “signs” (tracks, scats, active digging, etc.) of this species observed during the surveys; however, San Joaquin kit fox could still become established in the Project or buffer area prior to Project implementation. This species could also dig out existing

California ground squirrel burrows found within the Project and buffer zone for use as nesting and pupping dens.

Implementation of the Project could potentially result in significant impacts on individual San Joaquin kit foxes if they take up residence in the Project or buffer area prior to construction. Impacts to this species would likely occur through one of the following ways:

- Through crushing or injury of individual San Joaquin kit foxes, if any are present within areas proposed for disturbance during construction;
- Through the destruction of burrows if they are excavated by San Joaquin kit foxes within disturbance areas prior to construction; or
- Through visual, noise, and vibration impacts.

If San Joaquin kit foxes become established in burrows adjacent to or within proposed disturbance areas, construction equipment or the presence of construction personnel, and the noise and vibration caused by construction activities could lead to the abandonment of actively used burrows/dens. However, as discussed previously, neither potential burrows/dens nor "signs" (tracks, scats, active digging, etc.) were identified during biological surveys of the Project or buffer area. Still, project activities could cause the abandonment of occupied burrows/dens if any kit foxes are established prior to Project implementation.

Potential impacts to San Joaquin kit foxes and their potential burrows/dens would be considered a potentially significant impact. Implementation of MMs **BIO-1**, **BIO-2**, **BIO-6** and **BIO-10** would avoid or reduce impacts to this special-status wildlife species, and would therefore reduce impacts to a less than significant level.

Impacts to Special-Status Fish Species from Project Implementation

HDD boring would be used to install the proposed pipeline under the River. The pipeline would be placed at a sufficient depth (50 feet) under the bed of the River to substantially reduce the likelihood of release of drilling fluids into the water. Using HDD would avoid direct disturbance to the bed and bank of the River, and would avoid impacts to special-status fish species from direct construction-related disturbance; however, the remote chance does exist that a "frac-out" could occur and release drilling lubricants into the River or into adjacent areas that drain into the River. The release of drilling fluids into the habitat of special-status fish species could result in the injury or mortality of special-status fish species, should they come into contact with these materials. These drilling fluids could adversely affect the water quality of the spawning and rearing habitats downstream, which may impair salmonid egg incubation, feeding, respiration, or behavior. Inadvertent releases of these materials can be toxic to salmonids and other aquatic organisms.

Impacts to special-status fish species would be considered a potentially significant effect. The implementation of MMs **BIO-1**, **BIO-7** and **BIO-10** would avoid or reduce impacts to this special-status wildlife species, and would therefore reduce impacts to a less than significant level.

Impacts to Special-Status Reptile Species from Project Implementation

Western Pond Turtle

Implementation of the Project could potentially result in significant impacts to western pond turtles during project implementation. Direct injury or mortality of individual turtles could result if they are present in work areas during project implementation, although RAB Consulting observed no evidence of western pond turtles within areas proposed for ground or buffer areas during biological surveys. Impacts to individual western pond turtles would be considered a significant impact; however, the implementation of MMs **BIO-1**, **BIO-2**, **BIO-8** and **BIO-10** would avoid or reduce impacts to this special-status wildlife species, and would therefore reduce impacts to a less than significant impact.

Giant Garter Snake (GGS)

Implementation of the Project could potentially result in significant impacts to GGS. Direct injury or mortality of individual GGS could result if GGS are present in work areas during Project implementation. GGS have the potential to be present in areas where pipeline installation activities would occur within 200 feet of aquatic habitat. Individual GGS could be crushed by construction equipment and during pipeline installation activities if present in work areas. RAB Consulting observed no evidence of GGS within areas proposed for ground or buffer areas during biological surveys.

Potential impacts to GGS would be considered a potentially significant impact. The implementation of the MMs **BIO-1**, **BIO-2**, **BIO-9** and **BIO-10** described below following the impacts discussion would avoid or reduce impacts to this special-status wildlife species, and would therefore reduce impacts to a less than significant impact. With the implementation of MMs BIO-1 through BIO-10, impacts to special-status plant and animal species would be reduced to a less than significant level.

BIO-1: Worker Environmental Awareness Training. A worker environmental awareness training shall be conducted prior to Project initiation for construction personnel, and shall consist of a brief presentation in which a biologist knowledgeable in local sensitive habitats and wildlife and regulatory protection will discuss environmental concerns. All personnel working on the Project shall be educated on the sensitivity of adjacent habitats and species.

BIO-2: Pre-Construction Biological Surveys. A pre-construction biological species clearance survey shall be conducted by a qualified biologist, approved by CSLC

staff, no fewer than 14 days or more than 30 days prior to the beginning of construction activities to determine evidence of the presence of any of the special-status animal species identified in Table 2 of the attached Biological Assessment Report (Appendix D). MM BIO-3, BIO-4, BIO-6 and BIO-8 detail procedures that shall be followed in the event the survey identifies evidence of the presence of special-status species.

BIO-3: Pre-construction Avian Nesting Surveys. To avoid or reduce potential impacts to nesting special-status avian species, a qualified biologist, approved by CSLC staff, will conduct pre-construction nesting surveys for special-status avian species within the Project and buffer area during the appropriate survey periods for each species. Surveys and survey timing will follow CDFW- and USFWS-approved protocols where applicable. Where active special-status bird nest sites are identified or suspected to occur during pre-construction surveys, the qualified biologist shall establish the following buffer zones around nest sites, and no disturbance activities will occur within these buffer zones until the biologist confirms that young birds have fledged or the nests have failed. Nesting buffer zones shall be marked with stakes, and signs shall be placed on the stakes indicating that no construction activities are to be conducted in the buffer areas until the areas are cleared by the qualified biologist:

- Swainson's Hawk. To avoid and minimize impacts on nesting Swainson's hawks, a 1,320-foot buffer shall be established around active nesting sites for work between March 1 and August 31. No Project-related activities will be allowed to occur within this zone. A biological monitor shall monitor the nest site on a regular schedule to ensure no impacts are occurring to nesting Swainson's hawks. Monitoring protocol shall be determined in consultation with CDFW. The buffer area can be removed prior to August 31 if the qualified biologist determines that all juveniles have fledged from occupied nests.

- White-Tailed Kite. To avoid and minimize impacts on white-tailed kites, a 250-foot buffer shall be established around active nests for work between January 1 and October 31. No Project-related activities will be allowed to occur within this buffer until the qualified biologist determines that young have fledged or the species are no longer attempting to nest. The buffer area can be removed prior to October 31 if the qualified biologist determines that all juveniles have fledged from occupied nests.

- Migratory Song Birds. To avoid and minimize impacts on nesting migratory songbirds, a 250-foot buffer shall be established around active nesting sites when Project activities will occur between March 1 and August 31. No Project activities will be allowed to occur within this zone. The buffer area

can be removed prior to August 31 if the qualified biologist determines that all juveniles have fledged from occupied nests.

BIO-4: Contingency Measures for Burrowing Owls and Nest Sites. If active burrowing owl nest sites are observed on or within 500 feet of the Project or buffer area during the pre-construction biological survey (MM BIO-2), the biologist shall consult with the CDFW and the following measures shall be implemented:

- If the species is found to be present and it is within the nesting season (February 1 through August 31), construction shall not occur within 300 feet of the active burrows unless a qualified biologist, approved by the CDFW, verifies through non-invasive methods that either: (1) the birds have not begun egg-laying and incubation; or (2) that juveniles from the occupied burrows are foraging independently and are capable of independent survival. The 300-foot buffer shall be clearly marked before construction commences;
- Burrowing owls present between September 1 and January 31 (outside of the breeding season) shall be moved away from the disturbance area using passive relocation techniques. Relocation shall only take place between September 1 and January 31, and must be completed by January 31. Prior to commencement of relocation, a Relocation Management and Mitigation Plan (RMMP) shall be prepared by Three Rivers and approved by CDFW. Passive relocation techniques and mitigation will comply with the RMMP and recommendations in the CDFW Staff Report on Burrowing Owl Mitigation Guidelines (2012), and shall include the following measures and criteria:
    - One-way doors shall be installed in burrow entrances. Doors shall be left in place for 48 hours to ensure owls have left the burrow;
    - Once owls have relocated off-site, existing burrows shall be collapsed to prevent reoccupation. Prior to burrow excavation, flexible plastic pipe shall be inserted into the tunnels to allow escape of any remaining owls during excavation. Excavation shall be conducted by hand whenever possible;
    - Destruction of burrows shall only occur in conformance with the CDFW-approved RMMP specified above; and
    - Destruction of occupied burrows after relocation shall be mitigated through enhancement of existing unsuitable burrows (through enlargement or debris clearing) or creation of new burrows (by installation of artificial burrows) at a ratio of 2:1 on protected lands (mitigation lands). This mitigation will meet the following criteria:

- A specific site (mitigation lands) shall be identified where owl burrows will be created and/or enhanced;
- A minimum of 6.5 acres of foraging habitat per displaced owl or pair of owls shall be conserved in conjunction with the creation and enhancement of burrows. In the event that there is overlap between displaced owls' or pair of owls' foraging habitat, there can also be overlap in an equal level to the existing conditions, in the amount of foraging habitat mitigation provided, if approved by CDFW;
- A conservation easement or other protection for the mitigation lands shall be authorized which will ensure that the created burrows (and their associated owl population) will be conserved in-perpetuity; and
- Specific success criteria, management directives and annual reporting requirements shall be identified to ensure the success of the burrow creation and enhancement.

- As an alternative to the above two measures (if approved by CDFW), all occupied burrows identified outside of the construction and buffer areas, but within 500 feet of construction activities, both during and outside of nesting season (September through January) and during nesting season (February 1 through August 31) may be buffered by hay bales, fencing (e.g., sheltering in place) or as directed by a qualified biologist and the CDFW.

BIO-5: Riparian Brush Rabbit Protective Fencing. In areas where Project activities are proposed adjacent to freshwater emergent wetland habitat (potential habitat for the riparian brush rabbit), wildlife proof barrier fencing shall be installed prior to conducting Project activities (i.e., clearing of the pipeline right-of-way, trenching activities, etc.) to prevent riparian brush rabbits from entering Project work areas. If at any time during Project implementation an individual riparian brush rabbit is discovered within the fenced Project, all activities in the area would cease, and a qualified biologist, approved by the CDFW, would temporarily open the protective fencing and herd the rabbit out of the work area. Fencing would be closed after the rabbit has left the Project.

BIO-6: Contingency Measures for San Joaquin Kit Fox. If San Joaquin kit foxes are determined to be residing in the Project area or within 200 feet of the Project or buffer area during the pre-construction biological surveys, Three Rivers will implement the following measures, consistent with the USFWS (2011) "Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance:"

- If kit fox dens have become established in the Project area or within 200 feet of the Project area prior to Project implementation that may be indirectly

impacted by construction activities, exclusion zones shall be established prior to construction by a qualified biologist approved by the CDFW, and dens shall not be disturbed in any way. Exclusion zone fencing shall include untreated wood particle-board, silt fencing, orange construction fencing or other fencing as approved by the USFWS and CDFW. Exclusion zone barriers shall be maintained until all construction and drilling activities have been completed, after which all barriers shall be removed. Exclusion zones shall be roughly circular with a radius of 50 feet outward from the entrance of potential dens or 100 feet outward from the entrance of known dens. Fencing must contain openings for kit fox ingress / egress and keep humans and equipment out. If a natal/pupping den is discovered within the Project area or within 200 feet of the Project area, the USFWS and CDFW shall be immediately notified and under no circumstances should the den be disturbed or destroyed without prior authorization from USFWS and CDFW.

- If specified exclusion zones described above cannot be observed for any reason, USFWS and CDFW shall be contacted for guidance prior to ground-disturbing activities on the den or within the exclusion zones described above. In the event that USFWS and CDFW concur that an occupied San Joaquin kit fox den would be unavoidably destroyed by a planned Project action, procedures detailed in the USFWS (2011) "Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance" shall be implemented, and the following procedures shall be followed:
    - Three Rivers must first obtain authorization / permit from the USFWS and CDFW;
    - Known dens occurring within the footprint of the activity must be monitored for three (3) days with tracking medium or an infra-red beam camera to determine the current use:
        - If no kit fox activity is observed during this period, the den shall be destroyed immediately to preclude subsequent use;
        - If kit fox activity is observed at the den during this period, the den should be monitored for at least five (5) consecutive days from the time of the observation to allow any resident animal to move to another den during its normal activity. Use of the den can be discouraged during this period by partially plugging its entrances(s) with soil in such a manner that any resident animal can escape easily. Only when the den is determined to be unoccupied may the den be excavated under the direction of the biologist. If the animal is still present after five (5) or more consecutive days of plugging and monitoring, the den may have to be excavated when, in the judgment

of a biologist, it is temporarily vacant, for example during the animal's normal foraging activities. Whenever possible, burrows should be excavated using hand tools.

  - For potential dens, if a take authorization / permit has been obtained, den destruction may proceed without monitoring for kit fox use, unless other restrictions were issued with the take authorization/permit. If no take authorization / permit has been issued, then potential dens should be monitored as if they were known dens. If any den is considered to be a potential den, but is later determined during monitoring or destruction to be currently, or previously used by kit fox (e.g., if kit fox sign is found inside), then all construction activities shall cease and the USFWS and CDFW shall be notified immediately;
  - Destruction of the den shall be accomplished by careful excavation until it is certain that no kit foxes are inside. The den shall be fully excavated, filled with dirt and compacted to ensure that kit foxes cannot reenter or use the den during the construction period;
  - If at any point during excavation, a kit fox is discovered inside the den, the excavation activity shall cease immediately and monitoring of the den as described above shall be resumed. Destruction of the den may only be completed when the biologist has determined that the animal has escaped, without further disturbance, from the partially destroyed den. Natal or pupping dens which are occupied shall not be destroyed until the pups and adults have vacated, and then only after consultation with and authorization by the USFWS and CDFW; and
  - Den excavation shall be undertaken only by a qualified biologist pursuant to USFWS and CDFW authorization and direction for excavation of kit fox dens.

- In the event that a San Joaquin kit fox is found to be injured, dead, or entrapped, the incident shall immediately be reported to the Project biologist. The Project biologist shall then contact the following parties:
  - CDFW State Dispatch - (916) 445-0045
  - Mr. Paul Hoffman, CDFW wildlife biologist - (530) 934-9309
  - USFWS, Endangered Species Division - (916) 414-6620 or (916) 414-6600.

  The USFWS and CDFW shall be notified in writing within three (3) working days of the accidental death or injury to a San Joaquin kit fox during Project

related activities. Notification shall include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information, and be sent to the following addresses:

  - USFWS: Chief of the Division of Endangered Species, 2800 Cottage Way, Suite W2605, Sacramento, CA 95825-1846
  - CDFW: Mr. Paul Hoffman, 1701 Nimbus Road, Suite A, Rancho Cordova, CA 95670

New sightings of kit fox shall be reported to the California Natural Diversity Database using a California Native Species Field Survey Form, and a copy of the Form and a topographic map clearly marked with the location of where the kit fox was observed shall also be provided to the USFWS; and

- All construction pipes, culverts, or similar structures with a diameter of 4 inches or greater that are stored at a construction site for one or more overnight periods should be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, that section of pipe should not be moved until the USFWS and CDFW have been consulted. If necessary, and if approved by USFWS and CDFW, the pipe may be moved only once, and under the direct supervision of the biologist, to remove it from the path of construction activity until the fox has escaped.

BIO-7: Frac-Out Contingency Plan. To reduce or avoid impacts to special-status fish species and other aquatic wildlife species, Three Rivers shall implement the *Frac-Out Contingency Plan* as described in the MND in the event a frac-out should occur in the Mokelumne River, in agricultural drainage ditches, or in adjacent upland areas, including areas immediately adjacent to areas with aquatic resources. A copy of this plan shall be maintained at the Project site for reference during all times. Appropriate clean up materials shall be staged at each individual location of boring so that equipment will be available at all times.

BIO-8: Contingency Measures for Western Pond Turtle. The Applicant shall implement the following measures to avoid impacts to western pond turtle during Project construction.

- If juvenile or adult turtles are found within Project work areas during pre-construction biological surveys, the individual turtles shall be moved out of the Project disturbance zone by a qualified biologist approved by CDFW; and
- If this species is observed within Project work areas at any time during construction activities, construction work shall cease within 150 feet of the area until the turtle(s) can be moved by the qualified biologist to a safe location consistent with CDFW regulations.

BIO-9: Giant Garter Snake Protective Measures. In accordance with *Standard Avoidance and Minimization Measures for Construction Activities in Giant Garter Snake Habitat* (USFWS 1997), the following mitigation measures shall be implemented during implementation of the Project to avoid impacts to GGS:

- 24 hours prior to construction activities, construction work areas within 200 feet of agricultural drainage ditches shall be surveyed for GGS by a qualified biologist approved by CSLC staff. Surveys of these areas shall be repeated if a lapse in construction activity of two weeks or greater has occurred. If a GGS is encountered during surveys, Three Rivers shall report the sighting(s) to USFWS immediately by telephone at (916) 414-6600. Additionally, the Project biologist shall submit all sightings to the California Natural Diversity Database using a California Native Species Field Survey Form and provide copies to CDFW and USFWS;
- If construction activities are to be conducted within 200 feet of agricultural drainage ditches between October 2 and April 30, the Sacramento USFWS Office and CDFW will be consulted with to determine what additional measures are necessary to minimize and avoid take, and what permits would be required. These measures shall be implemented and all necessary permits obtained before work in those areas continues;
- Vegetative clearing shall be confined to the minimum area necessary for construction. Potential GGS habitat adjacent to the pipeline alignment shall be flagged and posted prior to ground-disturbing activities to avoid encroachment by construction personnel;
- All movement of construction equipment and vehicles shall be confined to existing roadways and the pipeline alignment, including the 15-foot buffer around the alignment;
- The qualified biologist shall be on-site during all construction and earthmoving activities that occur within 200 feet of potential GGS habitat. The biologist shall contact CDFW and USFWS if any GGS are encountered, or if any incidental take occurs. In the event GGS are observed near or in the construction area, the biologist shall have the authority to stop construction until the GGS has left the area. Physical removal of GGS from the Project area shall only be conducted with CDFW and USFWS authorization, and shall be conducted by a biologist qualified and listed by USFWS to handle this species. The biologist shall record all relevant environmental, biological, and behavior data observed, and submit summary reports to CDFW and USFWS; and
- All Project-related traffic shall observe a speed limit of 15 miles per hour to ensure that any GGS crossing or basking on access roadways or the proposed pipeline alignment will have time to move out of the way of traffic.

BIO-10: General Impact Avoidance and Minimization. Three Rivers shall implement the following general environmental avoidance and minimization measures to protect biological resources within the Project and buffer area:

- Hazardous materials, fuels, lubricants, or solvents that are accidentally spilled during drilling activities shall be cleaned up and disposed of immediately and according to applicable federal, State and local regulations;
- The speed of Project-related vehicular traffic shall be limited to 15 miles per hour once vehicles have left State or County roads and are traveling along unpaved dirt access roads to and from the Project;
- All equipment storage during site development and operation shall be confined to areas proposed for disturbance or to previously disturbed offsite areas that are not potential habitat for sensitive species;
- Sediment-control devices (e.g., weed-free straw wattles, silt fence, straw bales, etc.) shall be installed around construction work zones to prevent runoff to adjacent sensitive wildlife habitats;
- To prevent entrapment of wildlife species during the construction phase of the Project, all excavated, steep-walled holes and trenches in excess of 3 feet in depth shall be provided with one or more escape ramps constructed of earthen fill or a wood/metal plank. If wildlife-proof barricade fencing is available, it shall also be utilized where appropriate. Escape ramps shall be at less than a 45° angle. Trenches and pits shall be inspected for entrapped wildlife each working day before construction activities resume. Before such pits and trenches are filled, they shall be thoroughly inspected for entrapped animals. If any wildlife species are discovered, they shall be allowed to escape voluntarily, without harassment, before construction activities resume, or removed from the trench or hole by a qualified biologist approved by CSLC staff and allowed to escape unimpeded;
- All construction pipes, culverts, or similar structures that are stored at a construction site overnight shall be thoroughly inspected for trapped animals before the pipe is buried, capped, or otherwise used or moved. Pipes laid in trenches overnight shall be capped. If an animal is discovered inside a pipe, that section of pipe shall not be capped or buried until the animal has escaped;
- All trash items such as wrappers, cans, bottles, and food scraps generated both during construction and subsequent operation shall be disposed of in closed containers only and regularly removed from the site. No deliberate feeding of wildlife shall be allowed;
- To prevent harassment, mortality, or unauthorized “take” of sensitive species and/or their habitat by domestic dogs and cats, no pets shall be permitted onsite; and

- Firefighting equipment shall be maintained on site during Project-related activities to minimize impacts associated with wild fires. Shields, protective mats or other fire preventive methods shall be used during grinding and welding activities to prevent or minimize the potential for fire. Personnel shall be trained regarding fire hazard for wildlife and their habitats.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Installation of the pipeline will not impact any riparian habitat; however, the pipeline would be installed within agricultural wetlands (agricultural fields) by trenching. Agricultural wetlands are wetlands that are currently disturbed and used for agricultural purposes, but historically were wetlands as a part of the Sacramento-San Joaquin Delta. They are regulated by the USACE and RWQCB. The trench will be approximately 2 feet wide and will be excavated to provide a minimum cover of 5 feet under farm fields (the depth of the trench could be greater if special conditions are encountered). Segregation of topsoil will be conducted during construction to maintain the existing soil profile. The trencher or backhoe will make a first pass in the trench-line to remove approximately 10 to 18 inches of topsoil. Topsoil will be placed alongside the trench opposite the side designated for trench spoils. Once the topsoil has been excavated, a trencher or backhoe will make a second pass along the trench-line to remove the subsoil and complete the excavation. The pipe would then be placed in the trench, and soils would be placed back in the trench in the same order in which they were removed, thus maintaining the original layers of the soil. The total trenching surface disturbance would be approximately 3,245 linear feet long and 2 feet wide (approximately 6,490 square feet or 0.15 acre). No permanent changes to existing drainage patterns would occur as a result of Project implementation, as original ground surface contours would be restored after Project construction.

Impacts to agricultural wetlands would be considered temporary in nature. The USACE and CVRWQCB consider impacts to be temporary as long as impacted areas are restored within the same season. If agricultural wetland soils are restored in the same season, no compensatory wetland mitigation is required by these agencies to offset impacts. Therefore, impacts to agricultural wetlands would be less than significant.

c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

See Response 3.3.4.3 b) above. A map showing wetland habitat is appended as Figure 3.3.4. The USACE did not require a wetland delineation as the entirety of the agriculture lands found on both Bouldin and Tyler Islands are considered agricultural wetlands.

RAB Consulting conducted a desktop mapping of wetlands in the Project 250-foot buffer area (see map in Figure 3.3.4.1-2). Bill Guthrie with the USACE on November 12, 2012 accepted the map as adequate for mapping wetland habitat. As discussed in Response 3.3.4.3 b) above, impacts to federally protected wetlands would be less than significant.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

See Response 3.3.4.3 a) above. The Project would not impact any migration routes or corridors during project implementation. No wildlife nursery sites were identified within the Project or buffer areas during biological studies conducted by RAB Consulting. However, migratory native salmonids may be present in the River during HDD boring activities; if a frac-out occurred and the bentonite slurry used in the HDD process entered the River, aquatic species such as benthic invertebrates, aquatic plants, and fish and fish eggs could be smothered by the fine particles in the bentonite. However, with application of MM **BIO-7**, which would implement a Frac-Out Contingency Plan during HDD activities, the potential impact would become less than significant.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The Project conforms to the requirements of the Sacramento and San Joaquin County General Plans, including the Conservation Elements of these documents. The Project does not conflict with any local policies and ordinances regarding terrestrial resources and does not include the removal of any trees; therefore, the Project would be in compliance with the Sacramento and San Joaquin County General Plans and local tree ordinances. With the implementation of mitigation measures described previously under a), impacts would be considered less than significant.

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan?

The San Joaquin County Multispecies Habitat Conservation Plan (SJMSCP) covers the entire County of San Joaquin, including Bouldin Island on which portions of the Project would occur; however, agricultural lands are not covered by the provisions of the SJMSCP. As the Project will only have ground-disturbing impacts within agricultural lands, the SJMSCP is not applicable to the Project. No other habitat conservation plans are applicable to or cover the Project area. Therefore, no impacts are anticipated due to Project implementation.

Table 3.3.4-2. Special-Status Plant & Wildlife Species Recorded or Potentially Occurring within the Project Area.

Common Name	Scientific Name	Federal Status	State Status	Habitat/Observances	Potential to Occur on Project Site
Plants (see Figure 3.3.4.1-1)					
Bristly sedge	*Carex comosa*	-	List 2	Marshes, swamps, lake margins, and wet places. Elevational range: -5 to 1,005 meters. Blooming period: May through September.	Potentially present. Potential habitat for this species occurs within freshwater emergent wetland habitat found in agricultural drainage ditches crossing the proposed pipeline alignment, along the edges of the River HDD crossing, and within wetlands adjacent to portions of the northwest side of the proposed pipeline alignment on Bouldin Island. Potential habitat was also observed within similar habitats found within the Project buffer area. No individual plants were observed during surveys. This species has not been documented within the Project area by the CNDDB (CDFG 2012).
Delta tule pea	*Lathyrus jepsonii* var. *jepsonii*	-	List 1B	Freshwater and brackish marshes. Typically on marsh and slough edges, along with *Typha, Aster lentus, Rosa calif., Juncus* spp*., Scirpus,*etc. Elevational range: 0 to 4 meters. Blooming period: May through September.	Potentially present. Potential habitat for this species occurs within freshwater emergent wetland habitat found in agricultural drainage ditches crossing the proposed pipeline alignment, along the edges of the River HDD crossing, and within wetlands adjacent to portions of the northwest side of the proposed pipeline alignment on Bouldin Island. Potential habitat was also observed within similar habitats found within the Project buffer area. No individual plants were observed during surveys. This species has been documented approximately 0.4 mile southwest of the proposed pipeline alignment by the CNDDB (CDFG 2012).
Mason's lilaeopsis	*Lilaeopsis masonii*	-	Rare, List 1B	Freshwater and brackish marshes, riparian scrub. Elevational Range: 0 to 10 meters. Blooming period: April through November.	Potentially present. Potential habitat for this species occurs within freshwater emergent wetland habitat found in agricultural drainage ditches crossing the proposed pipeline alignment, along the edges of the River HDD crossing, and within wetlands adjacent to

Table 3.3.4-2. Special-Status Plant & Wildlife Species Recorded or Potentially Occurring within the Project Area.

Common Name	Scientific Name	Federal Status	State Status	Habitat/Observances	Potential to Occur on Project Site
					portions of the northwest side of the proposed pipeline alignment on Bouldin Island. Potential habitat was also observed within similar habitats found within the Project buffer area. No individual plants were observed during surveys. This species has not been documented within the Project area by the CNDDB (CDFG 2012).
Delta mudwort	*Limosella subulata*	-	List 2	Freshwater and brackish marshes, riparian scrub. Typically on mud banks of the delta. Often with *Lilaeopsis masonii.* Elevational range: 0 to 3 meters. Blooming period: May through August.	Potentially present. Potential habitat for this species occurs within freshwater emergent wetland habitat found in agricultural drainage ditches crossing the proposed pipeline alignment, along the edges of the River HDD crossing, and within wetlands adjacent to portions of the northwest side of the proposed pipeline alignment on Bouldin Island. Potential habitat was also observed within similar habitats found within the Project buffer area. No individual plants were observed during surveys. This species has not been documented within the Project area by the CNDDB (CDFG 2012).
Eel-grass pondweed	*Potamogeton zosteriformis*	-	List 2	Marshes, swamps, ponds, lakes, and streams. Elevational range: 0 to 1,860 meters. Blooming period: March through May.	Potentially present. Potential habitat for this species occurs within freshwater emergent wetland habitat found in agricultural drainage ditches crossing the proposed pipeline alignment, along the edges of the River HDD crossing, and within wetlands adjacent to portions of the northwest side of the proposed pipeline alignment on Bouldin Island. Potential habitat was also observed within similar habitats found within the Project buffer area. No individual plants were observed during surveys. This species has not been documented within the Project area by the CNDDB (CDFG 2012).

Table 3.3.4-2. Special-Status Plant & Wildlife Species Recorded or Potentially Occurring within the Project Area.

Common Name	Scientific Name	Federal Status	State Status	Habitat/Observances	Potential to Occur on Project Site
Sanford's arrowhead	*Sagittaria sanfordii*	-	List 1B	Marshes and swamps in standing or slow-moving fresh water. Elevational range: 0 to 610 meters. Blooming period: May through October.	Potentially present. Potential habitat for this species occurs within freshwater emergent wetland habitat found in agricultural drainage ditches crossing the proposed pipeline alignment, along the edges of the River HDD crossing, and within wetlands adjacent to portions of the northwest side of the proposed pipeline alignment on Bouldin Island. Potential habitat was also observed within similar habitats found within the Project buffer area. No individual plants were observed during surveys. This species has not been documented within the Project area by the CNDDB (CDFG 2012).
Marsh skullcap	*Scutellaria galericulata*	-	List 2	Marshes, swamps, wet places, lower montane coniferous forest, meadows, and seeps. Elevational range: 0 to 2,100 meters. Blooming period: June through September.	Potentially present. Potential habitat for this species occurs within freshwater emergent wetland habitat found in agricultural drainage ditches crossing the proposed pipeline alignment, along the edges of the River HDD crossing, and within wetlands adjacent to portions of the northwest side of the proposed pipeline alignment on Bouldin Island. Potential habitat was also observed within similar habitats found within the Project buffer area. No individual plants were observed during surveys. This species has not been documented within the Project area by the CNDDB (CDFG 2012).
Side-flowering skullcap	*Scutellaria lateriflora*	-	List 2	Wet Meadows, seeps, marshes, and swamps. Elevational range: -3 to 500 meters. Blooming period: July through September.	Potentially present. Potential habitat for this species occurs within freshwater emergent wetland habitat found in agricultural drainage ditches crossing the proposed pipeline alignment, along the edges of the River HDD crossing, and within wetlands adjacent to portions of the northwest side of the proposed pipeline alignment on Bouldin

Table 3.3.4-2. Special-Status Plant & Wildlife Species Recorded or Potentially Occurring within the Project Area.

Common Name	Scientific Name	Federal Status	State Status	Habitat/Observances	Potential to Occur on Project Site
					Island. Potential habitat was also observed within similar habitats found within the Project buffer area. No individual plants were observed during surveys. This species has been documented as occurring throughout the Project area by the CNDDB (CDFG 2012).
Suisun marsh aster	*Symphyotrichum lentum*	-	List 1B	Marshes and swamps (brackish and freshwater). Most often along sloughs with *phragmites, typha, scirpus,* blackberry, etc. Elevational range: 0 to 3 meters. Blooming period: May to November.	Potentially present. Potential habitat for this species occurs within freshwater emergent wetland habitat found in agricultural drainage ditches crossing the proposed pipeline alignment, along the edges of the River HDD crossing, and within wetlands adjacent to portions of the northwest side of the proposed pipeline alignment on Bouldin Island. Potential habitat was also observed within similar habitats found within the Project buffer area. No individual plants were observed during surveys. This species has been documented immediately northeast of the proposed pipeline alignment by the CNDDB (CDFG 2012).
Woolly rose-mallow	*Hibiscus lasiocarpos* var. *occidentalis*	-	List 2	Freshwater marshes and swamps. Moist, freshwater soaked river banks and low peat islands in sloughs. Elevational range: 0 to 150 meters. Blooming period: June through September.	Potentially present. Potential habitat for this species occurs within freshwater emergent wetland habitat found in agricultural drainage ditches crossing the proposed pipeline alignment, along the edges of the Mokelumne River HDD crossing, and within wetlands adjacent to portions of the northwest side of the proposed pipeline alignment on Bouldin Island. Potential habitat was also observed within similar habitats found within the Project buffer area. No individual plants were observed during surveys. This species has been documented approximately 0.9 mile southwest of the

Table 3.3.4-2. Special-Status Plant & Wildlife Species Recorded or Potentially Occurring within the Project Area.

Common Name	Scientific Name	Federal Status	State Status	Habitat/Observances	Potential to Occur on Project Site
					proposed pipeline alignment by the CNDDB (CDFG 2012).
Northern California black walnut	*Juglans hindsii*	-	List 1B	Riparian forest and woodland. Found in deep alluvial soils associated with a creek or stream. Elevational range: 0 to 395 meters. Blooming period: April through May.	No potential. This species was not identified within the Project or buffer areas during biological surveys.
Sensitive Habitats					
Coastal and valley freshwater marsh (present)					
Great Valley valley oak riparian forest (not present)					
Birds					
Burrowing owl	*Athene cunicularia*	-	CSC	Open grasslands, prairies, farmlands, and deserts.	Potentially present. Potential foraging habitat for this species was observed throughout the Project and buffer area during biological surveys. No potential burrows that could be used by this species for nesting purposes were observed during biological surveys. However, California ground squirrels and their burrows were observed during the biological surveys. This species has the potential to use these burrows should they become established in the Project or buffer area prior to Project implementation. No individual owls observed during biological surveys. This species has not been documented within the Project area by the CNDDB (CDFG 2012).
Swainson's hawk	*Buteo swainsoni*	-	CT	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and ranch and agricultural lands. Requires adjacent suitable foraging areas such as grasslands or alfalfa/grain fields supporting rodent populations.	Potentially present. Potential foraging habitat for this species observed throughout the Project and buffer area during biological surveys. Trees that could be used for nesting occur approximately 480 feet to the west of the proposed pipeline alignment. No individual Swainson's hawks or potential nesting sites were observed during biological surveys. This species has not been

Table 3.3.4-2. Special-Status Plant & Wildlife Species Recorded or Potentially Occurring within the Project Area.

Common Name	Scientific Name	Federal Status	State Status	Habitat/Observances	Potential to Occur on Project Site
					documented within the Project area by the CNDDB (CDFG 2012).
White-tailed kite	*Elanus leucurus*	-	FP	Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. Found in open grasslands, meadows, or marshes foraging close to isolated, dense-topped trees for nesting and perching.	Potentially present. Potential foraging and nesting habitat for this species occurs within freshwater emergent wetland habitat found in agricultural drainage ditches crossing the proposed pipeline alignment, along the edges of the River bore crossing, and within wetlands adjacent to portions of the northwest side of the pipeline alignment on Bouldin Island. Potential habitat was also observed within similar habitats found within the Project buffer area. No individuals of this species were observed during surveys, nor were any potential nesting sites identified. This species has not been documented within the Project area by the CNDDB (CDFG 2012).
California black rail	*Laterallus jamaicensis coturniculus*	-	CT, FP	Mainly inhabits salt-marshes bordering larger bays. Occurs in tidal salt marsh heavily grown to pickleweed. Also found in freshwater and brackish marshes. Needs dense vegetation for nesting habitat.	No potential. Unlikely to occur due to lack of potential habitat within the Project or buffer areas or existing access roadways.
California clapper rail	*Rallus longirostris obsoletus*	FE	CE, FP	Salt water and brackish marshes traversed by tidal sloughs in the vicinity of San Francisco Bay. Associated with abundant growths of pickleweed. Feeds away from cover on invertebrates from mud-bottomed sloughs.	No potential. Unlikely to occur due to lack of potential habitat within the Project or buffer areas or existing access roadways.
Mammals					
Western red bat	*Lasiurus blossevillii*	-	CSC	Prefers habitat edges and mosaics with trees that are protected from above and open below with open areas for foraging. Roosts primarily in trees, 2 to 40 feet above the ground surface.	Potentially present. Potential foraging habitat for this species was observed throughout the Project and buffer area during biological surveys. No roosting habitat (trees) appropriate for use by this species was

Table 3.3.4-2. Special-Status Plant & Wildlife Species Recorded or Potentially Occurring within the Project Area.

Common Name	Scientific Name	Federal Status	State Status	Habitat/Observances	Potential to Occur on Project Site
					observed during biological surveys. No individual western red bats were observed during surveys, nor are any sightings documented in the Project area (CDFG 2012).
Riparian brush rabbit	*Slyvilagus bachmani riparius*	FE	CE	Inhabit dense, brushy areas of Valley riparian forests, marked by extensive thickets of wild rose (*Rosa* spp.), blackberries (*Rubus* spp.), and willows (*Salix* spp.). Thriving mats of low-growing vines and shrubs serve as ideal living sites where they build tunnels under and through the vegetation.	Potentially present. Potential habitat for this species occurs within freshwater emergent wetland habitat found near agricultural drainage ditches crossing the proposed pipeline alignment, along the edges of the Mokelumne River HDD crossing, and within wetlands adjacent to portions of the northwest side of the pipeline alignment on Bouldin Island. Potential habitat was also observed within similar habitats found within the Project buffer area. No individuals of this species were observed during surveys. This species has not been documented within the Project area by the CNDDB (CDFG 2012).
San Joaquin kit fox	*Vulpes macrotis mutica*	FE	CT	Annual grasslands or grassy open stages with scattered shrubby vegetation. Require loose textured sandy soils for burrowing and suitable prey base.	Potentially present. Potential habitat for this species occurs within both the Project and buffer area. No individual San Joaquin kit foxes or sign of their presence (tracks, scats, prey remains, potential or occupied burrows, etc.) were observed during surveys. This species has not been documented within the Project area by the CNDDB (CDFG 2012).
Invertebrates					
Sacramento anthicid beetle	*Anthicus sacramento*	-	-	Restricted to sand dune areas. Inhabit sand slipfaces among bamboo and willow and willow but may not depend on presence of these plant species.	No potential. Unlikely to occur due to lack of potential habitat within the Project or buffer areas or existing access roadways.
Conservancy fairy shrimp	*Branchinecta conservatio*	FE	-	Endemic to grasslands. Found in large, turbid pools. Inhabit astatic pools located in swales formed by old braided alluvium filled by winter and spring rains.	No potential. Unlikely to occur due to lack of potential habitat within the Project or buffer areas or existing access roadways.

Table 3.3.4-2. Special-Status Plant & Wildlife Species Recorded or Potentially Occurring within the Project Area.

Common Name	Scientific Name	Federal Status	State Status	Habitat/Observances	Potential to Occur on Project Site
Longhorn fairy shrimp	*Branchinecta longiantenna*	FE	-	Vernal pool habitats, from small, clear, sandstone rock pools to large, turbid, alkaline, grassland valley floor pools	No potential. Unlikely to occur due to lack of potential habitat within the Project or buffer areas or existing access roadways.
Vernal pool fairy shrimp	*Branchinecta lynchi*	FT	-	Endemic to the grasslands of the Central Valley, Central Coast Mountains, and South Coast Mountains in astatic rain-filled pools. Inhabit small clear-water sandstone-depression pools and grassed swales, earth slumps, or basalt-flow depression pools.	No potential. Unlikely to occur due to lack of potential habitat within the Project or buffer areas or existing access roadways.
Valley elderberry longhorn beetle	*Desmocerus californicus dimorphus*	FT	-	Occurs only in the Central Valley of California, in association with blue elderberry (*Sambucus mexicana*). Prefers to lay eggs in elderberries 2-8 inches in diameter; some preference shown for stressed elderberry shrubs.	No potential. Unlikely to occur due to lack of potential habitat within the Project or buffer areas or existing access roadways.
Delta green ground beetle	*Elaphrus viridis*	FT	-	Restricted to the grassland margins of vernal pools, primarily between Jepson Prairie and Travis AFB.	No potential. Unlikely to occur due to lack of potential habitat within the Project or buffer areas or existing access roadways.
Vernal pool tadpole shrimp	*Lepidurus packardi*	FE	-	Inhabits vernal pools and swales in the Sacramento Valley containing clear to highly turbid water. Pools commonly found in grass bottomed swales of unplowed grasslands. Some pools are mud-bottomed and highly turbid.	No potential. Unlikely to occur due to lack of potential habitat within the Project or buffer areas or existing access roadways.
Fish					
Green sturgeon	*Acipenser medirostris*	FT	CSC	Generally found in marine waters from the Bering Sea to Ensenada, Mexico. However, spawning populations have been found only in medium sized rivers from the Sacramento-San Joaquin system north to the Bering Sea. Adult green sturgeon enter the estuary and move up the Sacramento River in early	Potentially present. Potential habitat for this species occurs within the River under which the proposed pipeline will be installed via HDD methods. No individuals of this species were observed during biological surveys. This species has not been documented within the Project area by the CNDDB (CDFG 2012). However, this species is likely

Table 3.3.4-2. Special-Status Plant & Wildlife Species Recorded or Potentially Occurring within the Project Area.

Common Name	Scientific Name	Federal Status	State Status	Habitat/Observances	Potential to Occur on Project Site
				spring. Anecdotal evidence suggests that spawning may also occur in the Feather River but has not yet been documented there. Spawning occurs in the Sacramento River between March and June. Spawning occurs in deep, fast water. Most young green sturgeon migrate from river to ocean when they are one to four years old.	present within the Project area during portions of the year.
Delta smelt	*Hypomesus transpacificus*	FT	CT	Delta smelt are found only from the Suisun Bay upstream through the Delta in Contra Costa, Sacramento, San Joaquin, Solano and Yolo counties. Shortly before spawning, adults migrate upstream from the brackish-water habitat associated with the mixing zone and disperse widely into river channels and tidally-influenced backwater sloughs. They spawn in shallow, fresh or slightly brackish water upstream of the mixing zone. Most spawning happens in tidally-influenced backwater sloughs and channel edgewaters. Although spawning has not been observed in the wild, the eggs are thought to attach to substrates such as cattails, tules, tree roots and submerged branches.	Potentially present. Potential habitat for this species occurs within the River under which the proposed pipeline will be installed via HDD methods. No individuals of this species were observed during biological surveys. This species has not been documented within the Project area by the CNDDB (CDFG 2012). However, this species is likely present within the Project area during portions of the year.
Central Valley steelhead	*Oncorhynchus mykiss*	FT	-	After maturing for 1 to 3 years in the ocean, adult steelhead typically begin their spawning migration into the Sacramento and San Joaquin Delta System in fall and winter. Adult steelhead enter the mainstream Sacramento River in July, peak in abundance in the fall, and continue migrating through February and March.	Potentially present. Potential habitat for this species occurs within the River under which the proposed pipeline will be installed via HDD methods. No individuals of this species were observed during biological surveys. This species has not been documented within the Project area by the CNDDB (CDFG 2012). However, this species is likely present within the Project area during

Table 3.3.4-2. Special-Status Plant & Wildlife Species Recorded or Potentially Occurring within the Project Area.

Common Name	Scientific Name	Federal Status	State Status	Habitat/Observances	Potential to Occur on Project Site
				Juvenile steelhead will remain in fresh water and continue to rear for 1 to 3 years before migrating to the ocean in November through May to mature. Smolts typically migrate to the ocean during march through June.	portions of the year.
Chinook salmon (Sacramento River Winter-Run, Central Valley Spring-Run, Central Valley Fall- and Late Fall-Run)	*Oncorhynchus tshawytscha*	FE / FT / FC	CE/CT/-	Adult winter-run Chinook salmon leave the ocean and migrate through the Sacramento-San Joaquin River Delta into the Sacramento River from November through July. Juvenile winter-run Chinook salmon rear and emigrate in the lower Sacramento River from October through March. Adult spring-run Chinook salmon enter the Sacramento and San Joaquin River main streams in February through July. Spring-run Chinook salmon appear to emigrate at 3 different life stages: as fry, fingerlings, or yearlings. Fry may occur between December and January, fingerlings occur from February through May, and yearling spring-run Chinook salmon emigrate from October through February. Central Valley fall run Chinook salmon occupy the major Central Valley river systems. After 2 to 4 years of maturation in the ocean, adult fall-run Chinook salmon return to their natal freshwater streams to spawn. Adult fall-run Chinook salmon enter the Sacramento River system from July through December and spawn from October through December. Juvenile fall-run and late fall-run Chinook salmon may rear from January to June.	Potentially present. Potential habitat for this species occurs within the River under which the proposed pipeline will be installed via HDD methods. No individuals of this species were observed during biological surveys. This species has not been documented within the Project area by the CNDDB (CDFG 2012). However, this species is likely present within the Project area during portions of the year.

Table 3.3.4-2. Special-Status Plant & Wildlife Species Recorded or Potentially Occurring within the Project Area.

Common Name	Scientific Name	Federal Status	State Status	Habitat/Observances	Potential to Occur on Project Site
Sacramento splittail	*Pogonichthys macrolepidotus*	-	CSC	Endemic to the lakes and rivers of the Central Valley, but now confined to the Delta, Suisun Bay, associated marshes, slow-moving river sections, and dead end sloughs. Require flooded vegetation for spawning and foraging for young.	Potentially present. Potential habitat for this species occurs within the River under which the proposed pipeline will be installed via HDD methods. No individuals of this species were observed during biological surveys. This species has not been documented within the Project area by the CNDDB (CDFG 2012). However, this species is likely present within the Project area during portions of the year.
Amphibians and Reptiles					
California tiger salamander	*Ambystoma californiense*	FT	CSC	Primarily inhabit non-native grassland providing underground refuges, especially ground squirrel burrows and vernal pools or other seasonal water sources for breeding.	No potential. Unlikely to occur due to lack of potential habitat within the Project or buffer areas or existing access roadways.
Western pond turtle	*Emys marmorata*	-	CSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Require basking sites and suitable upland habitat (sandy banks or grassy open fields) for egg-laying.	Potentially present. Potential habitat for this species occurs within agricultural drainage ditches crossing the proposed pipeline alignment and the River HDD crossing. Potential habitat was also observed within similar habitats found within the Project buffer area. No individual western pond turtles were observed during surveys. This species has not been documented within the Project area by the CNDDB (CDFG 2012).
Giant garter snake	*Thamnophis gigas*	FT	CT	Prefers fresh water marsh and low gradient streams. Has adapted to drainage ditches and irrigation canals.	Potentially present. Potential habitat for this species occurs within agricultural drainage ditches crossing the proposed pipeline alignment and the HDD crossing. Potential habitat was also observed within similar habitats found within the Project buffer area. Potential nesting and aestivation burrows were observed along the banks of the drainage ditches and the River within the Project and buffer area during biological

Table 3.3.4-2. Special-Status Plant & Wildlife Species Recorded or Potentially Occurring within the Project Area.

Common Name	Scientific Name	Federal Status	State Status	Habitat/Observances	Potential to Occur on Project Site
					surveys. Upland habitat adjacent to this aquatic habitat consisted of agricultural fields that are low in quality as use for aestivation habitat. No individual giant garter snakes were observed during biological surveys. This species has not been documented within the Project area by the CNDDB (CDFG 2012).
California red-legged frog	*Rana aurora draytonii*	FT	CSC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11-20 weeks of permanent water for larval development. Must have access to aestivation habitat, consisting of small mammal burrows and moist leaf litter.	No potential. Unlikely to occur due to lack of potential habitat within the Project or buffer areas or existing access roadways.

Sources: CDFG 2012, CNPS 2012, and USFWS 2012
LEGEND

FEDERAL	FE	Federally listed as endangered
	FT	Federally listed as threatened
	FC	Federal Candidate Species (former Category 1 candidates)
STATE	CE	State listed as endangered
	CT	State listed as threatened
	CR	State designated as Rare
	CSC	California Department of Fish and Wildlife designated “Species of Special Concern”
	FP	California Fully Protected Species
CNPS	CNPS List 1b	Plants that are rare, threatened, or endangered in California and elsewhere
	CNPS List 2	Plants that are rare, threatened, or endangered in California, but are more common elsewhere
	CNPS List 3	Plants about which we need more information – a review list
	CNPS List 4	Plants of limited distribution – a watch list

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